# The Iron A

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A Review of the Hardware, Iron and Metal Trades.

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#### Rolling-Mill Engines with Reversing 50,000 tons of sleepers-coal, coke, refract-Clutches.

From a recent issue of the Engineer (London) we reproduce the engravings on this page, illustrating a set of three-coupled rolling-mill engines erected at the works of the Woodside Steel and Iron Company, Coatbridge, England, by Messrs. Dick & bridge, England, by Messrs. Dick & Stevenson. The engines are furnished with Stevenson. The engines are furnished with ponderous reversing friction clutches and gearing, and embody several novel features. The designer, Mr. Stevenson, argues, according to the Engineer, that "plates or bars rolled at uniform speed are superior in tensile strength to such as are rolled by the staggering motion of reversing engines, and that many of the plate failures of which so much had been heard, such as that in one of the boilers of the Russian steamship Livadia, are due to defective processes. ship Livadia, are due to defective processes of rolling more than the differences in the quality of the metal of which they are composed." His theory is that "the molecules of iron put in motion when attacked by the or from put in motion when accepted by the rolls in passes of the piece through them require time as well as pressure to adjust and settle themselves in their respective relations and dispositions, with the effect of obtaining and dispositions, with the effect of obtaining the maximum textile strength corresponding to the quality of the metal. The alternating quick and slow travel of the rolls results in spasmodic seizures of the metal's molecules upon each other, which is destructive of strength of hold and incompatible with homogeneous masses throughout individual plates—a fact which is obvious on microscopic inspection." These views will not perhaps meet with general assent, especially as Mr. Stevenson mentions the possible improvement under this head as analogous to that referred to by Dr. Percy in gous to that referred to by Dr. Percy in connection with the strength of wire; but that the varying speeds have some effect will no doubt be admitted. The three en-gines shown have each 36-inch cylinders, with 42-inch strokes. The two cutside accura-42-inch strokes. The two outside engines are coupled to two crank-shafts, which they are coupled to two crank-shafts, which they drive continuously in opposite directions. These shafts are each connected at their inner ends to the center engine, which, by means of two connecting-rods working in opposite directions to each other, couple the shafts to the effect, combining the power of all the engines against resistance presented to either of the mill-wheels. The expression of the whole system when in sented to either of the mill-wheels. The appearance of the whole system when in full action presents to the eye strange and mixed movements. Four engine connecting-rods rise and fall unevenly, yet all beat time like the legs of a trotting quadruped, while the clutch pieces and rolls seem now to spin round right and left, now to stop or start or now to join chase in one direction in obedience to the finger touches on small hydraulic controlling valves. These may be seen in the plan. Engines and gearing are embraced in one united and compact bed frame, and are bound to it on the level face of a solid square foundation, so that unequal wearing of the foundation, so that unequal wearing of the machinery or uneven setting of the foundations, through pressures and strains long directed on particular points, is prevented. The main castings of the structure are of selected tough iron, and its main malleable parts of mild steel. The cranks are forged solid with steel. The cranks are forged solid with the shafts, and have crank-pins 10.5 inches diameter. The crank-shafts have necks 14.5 inches, and those carrying the mill-wheels and clutches have necks 16.5 inches diameter. The spur-wheels are 26.25 inches wide on the face, and are 8 feet 10.5 inches diameter. The weight of each set of wheels, with clutches and sliding boxes, is nearly 25 tons, and with the hydraulic reversing cylinders, central spindles, crabs, and their relative appurtenances, make up a total weight to be carried by each mill-shaft of about 30 tons. The teeth of the wheels, as will be seen from the illustration, are formed will be seen from the illustration, are formed on Stevenson's zigzag or quadruple helical design, with a central web between the two sets of teeth; the pitch is 7 inches. These teeth are claimed to be 30 per cent. stronger than those of the ordinary double helical form, because they present an arch through out half the total breadth of teeth toward the driving pressure in whichever direction the wheels and pinions drive. Second, the zigzag lines give greater sectional area of metal by virtue of their double apex. The whole has been worked out by careful reference to past experience, and the results will no doubt be looked for by rolling-mill engi-

Iron Sleepers on German Rallways. —A correspondent of Kuhlow's refers to the apprehension felt in Rhenish-West-phalian iron circles that the Government intends to return to the use of wooden sleepers in railway construction and repairs. sleepers in railway construction and repairs.

A few months ago the iron and steel producers made urgent representations to the Minister of Works on the matter, and the decision of the Prussian State Railway Department is awaited with anxiety. During last year contracts for iron sleepers were given to the extent of 63,000 tons, the last year contracts for iron sleepers were given to the extent of 63,000 tons, the last year contracts for iron sleepers were given to the extent of 63,000 tons, the last years works it means the occurrence of the producers and the first producers are contracted by the pr

neers and owners with interest.

ory material, ore, pig iron, &c.—it is cal-culated that a less consumption of 575,000 tons of material would be implied.

#### Engineering Accidents.

From a recent issue of the Engineers we take the following interesting article or

take the following interesting article on engineering accidents:

Engineers have very largely contributed to the happiness of mankind, but it must be admitted that they have also introduced elements and agencies which have caused much misery and suffering, both of mind and body. In the seventeenth century no one was killed by boiler explosions, and Mr. Huskisson was the first man their than the seventeenth of the manufacture of the seventeenth century in the seventeenth centu was the first man slain by a railway accident properly so called. Some thousands of individuals have been killed, mangled or maimed by machinery which would have no existence but for the engineer; and it might be argued with chinery which would have no existence but for the engineer; and it might be argued with some show of reason that the members of our profession have not been as careful to obviate disasters as they have been to attain the objects they have had in view. The answer to such a line of attack is, of course, that when mischief is done it is the result of accident; but it is worth while to consider whether this is true or not—whether disasters following on the not-whether disasters following on the labors of the engineer are or are not unavoidable, and whether there really is such a

and avoided, while others could not possibly have been anticipated. The latter are, however, comparatively small in number, and a very considerable proportion of the events called "accidents" are not in any proper sense of the word accidents at all. Take, for example, the Stepney boiler ex-

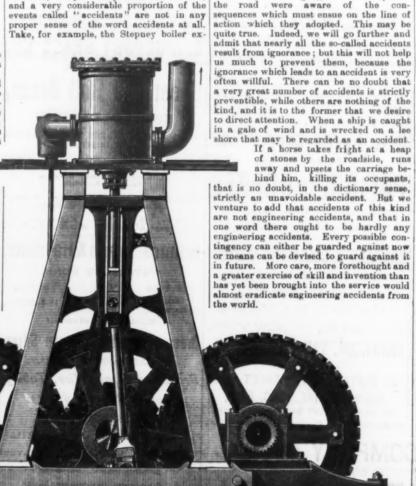


Fig. 1.-End Elevation

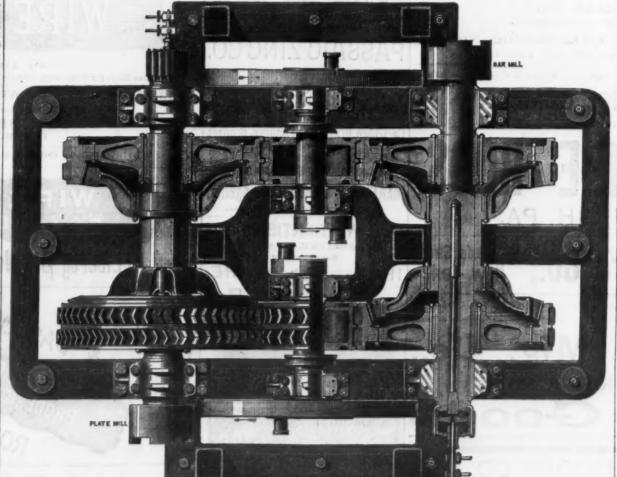


Fig. 2.-Plan.

THREE COUPLED ROLLING-MILL ENGINES WITH REVERSING CLUTCHES.

thing as an engineering accident. First, let us clearly define what the word "accident" plosion and the catastrophe which happened recently near Portadown, in Iroland. In the direction; much remains to be accomplished. Some years ago many deaths and mainings

if the owner had ascertained by proper ex-amination that the shell was extensively corroded. In the latter, so far as can be

A great deal has already been done in this were given to the extent of 53,000 tons, the amount for the year 1885-86 being 35,000 tons. For a large number of old and new roads wooden sleepers have been exclusively used, so that it is computed that the amount of iron substituted by wood is 50,000 tons. This represents about 70,000 tons. This represents about.

There are, howaver, two sides to this loss in wages would be very great. Taking all the material used in the production of pig iron, while the all the material used in the production of a substituted of the material used in the production of substituted by ward is a substance of the metal. But Mr. Mansel and other expineers working with the same object able, the train ran off the rails because the sleepers lay lose on a thin bed of ballast, and were not packed or secured in any way. These catastrophes obviously resulted below the productions of safety security on its continuity. If the tire broke amount of examination could the material used in the substance of the metal. But Mr. Mansel and other engineers working with the same object able, the train ran off the rails because the sleepers lay lose on a thin bed of ballast, and were not packed or secured in any way.

There are, howaver, two sides to this loss in wages would be very great. Taking all the material used in the production of pig iron, while the loss is a substitute of the metal. But Mr. Mansel and other engineers working with the same object able, the train ran off the rails because the succeeded in devising systems of making times. No amount of examination could the bursel. No amount of examination could the bursel. In the latter, so far as can be corrected. In the latter, so far as can be to the maintain that the substance of the metal. But Mr. Mansel and other engineers working with the same object able, the train ran off the rails because the succeeded in devising systems of making times. No amount of examination could the maintain that the substance of the metal. But Mr. Mansel and other engineers working with the substance of the m

norance lay at the root of the matter in riage left the rail, and there was a smash. riage left the rail, and there was a smash. But the modern tire does not depend on continuity for its efficiency. The modern tire may be broken right through in several places, and still it will do its duty and cling to the wheel. Derailments occur now and then through the breakage of crank axles. It may yet be found possible to build engines which will not be derailed even if the crank axle does break. This end has been very nearly attained even now; for, atthough a large number of crank axles break every year, few passengers are killed or wounded by their failure. The introduction of the block system and efficient continuous brakes both cases. Neither the owner of the boiler nor the gaugers who repaired the road were aware of the conblock system and efficient continuous brakes have in like manner done a great deal to make railway traveling safer than it was in times past. It will be found that what is true of railway working is true of almost everything with which the engineer has to do, and that engineering accidents may in nearly all cases be classed as strictly pre-ventible. The engineer deals with the forces, so called, of nature, but he does not deal with any uncontrollable force. He could not deal with an uncontrollable force. To do that is left for such geniuses as Mr. Keely. It is quite true that the forces of To do that is left for such geniuses as Mr. Keely. It is quite true that the forces of nature are stupendous: but man cannot do anything with them in the stupendous phase He can only take a very little bit of each, and use it just as far as he can control it—no more. The energy which is in a sense stored up in a great powder magazine is no doubt very great; but if a man can only get a thimbleful of powder out of the magazine he cannot do much mischief with that. But it must not be forgotten that the force does not wear out or change, while the means by which it is controlled does, and the escape of natural forces from the condition of servitude into which the engineer has brought them is always due, not to the inherent power of the slave, but to the wearing out of his fetters. A steam boiler can be made when new to resist a given pressure—say 150 pounds on the square inch—and its powers of doing mischief are so far limited. So long as the boiler is well designed, well made and in good order, the force of so much steam as the boiler represents when at work is quite under control. If, however, the boiler is suffered to waste away and become weak, then an explosion will take place; but the explosion is not due to the irresistible force of steam, as some persons think, but to the circumstance that to the irresistible force of steam, as some persons think, but to the circumstance that the boiler, originally strong enough, has become too weak for the work it had to per-

From what we have said it should be clear that so-called "engineering accidents" result not from the uncontrolled forces of nature, such as that which operate when a ship is driven ashore, but from neglect in some shape or form either to maintain in their integrity the power of the agency by which we control so much of a natural force as we have been able to utilize or to force as we have been able to utilize, or to force as we have been able to utilize, or to provide means by which the loss of integrity of the controlling agency may be rendered innocuous. The first is accurately illustrated by a steam boiler. When that boiler is at work there are so many thousand foot-tons of energy locked up in it, which, if the shell plates or flues give way, will be lat locked in a wemant to deferred. which, it the shell plates or flues give way, will be let loose in a moment to do fearful mischief. The strength of the boiler plates is the agency by which we coutrol the force of the steam. If the plates are allowed to become too weak by corrosion there is an explosion, but this explosion is not an accident, but the result of negligence, ignorance or parsimony. Mansel's tire is an antillustriance. or parsimony. Mansel's tire is an apt illustration of the second proposition. The agency with which we control centrifugal and other forces operating on and in the tire is its strength. It is possible that we may bring in a second contingent agent to bat centrifugal force if the tire should fail because of some weakness which we cannot discern. If there were no possible means either of making sure that all tires were sound, or that their failure would not result in the derailment of a train, then when a tire did break that would be strictly an accident. Happily it may be said that the list of dangerous failures of parts of ma-chines is rapidly growing less and less. Improved methods of construction, better materials, design and workmanship all tend day by day to eliminate true accidents and induce sensible, competent engineers to regard with more and more doubt theories intended to relegate accidents to the category of unpreventible. In nine cases out of tan it will be found that the so-called accident, instead of being the result of chance, has really been brought about by simple agencies having nothing occult about them. When a crane chain breaks and some men are killed, we may rest assured that it did not break by accident, but just because it was too weak for its work, and that had proper precautions been observed it would not have been too weak. The number of direction; much remains to be accomplished.

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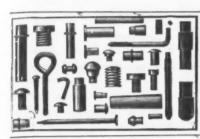
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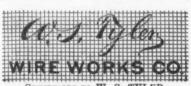


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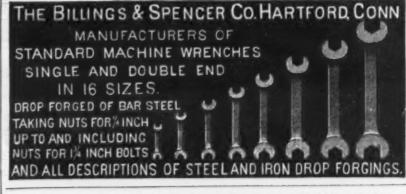
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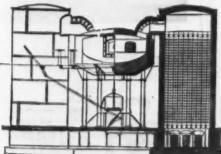
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To turn a set of locomotive tires, says the National Car and Locomotive tires, says the National Car and Locomotive Builder, is not necessarily a heavy or expensive operation, but it causes the engine to be taken into the shop for a few days, and if this happens when traffic is crowding the operating department the loss of the engine is an inconvenience. A set of tires that will run twice as long between turning a part to a white as long between turning as another set thus becomes an important element in reducing the expense of repairs, and often keeps an engine in service when the extra work done is worth far more than the price of first-class tires. This being the case, master mechanics are naturally anxious to use tires that will make long mileage without turn-ing, but there is great diversity of opinion as to what conditions will prolong the life of tires by reducing wear and tear. On no subject connected with locomotive engi-neering do we find railroad mechanical men more disposed to talk or to ask for suggestions. There is no disposition to abuse tire-makers for producing an inferior article, as there is with those who are intimately interested in the wear of steel rails and blame the makers for supplying steel mixed with cinder, but there are many complaints about the tires not wearing longer than they do. The circumstances connected with the wear of tires are often of a nature to puzzle the observer. A master mechanic who devoted careful attention to the tire question mentioned a curious performance of a set of tires. The engine was on heavy passenger service, and was run continually by one engineer. The tires were put on in the beginning of winter, and ran close on two years before they needed turning, having made about 18,000 miles to each  $\gamma_0^1$  inch of wear. At the end of another year the tires had to be turned, with about 8000 m les to the 1-16 inch of wear. After that the engine made about 20,000 miles to that the engine made about 20,000 miles to the 1-16 inch of wear for the remainder of the ife of the tires. There was no extra work done during the period the tires wore fast, and the same man held the throttle. Of course this is a striking instance of the "uncertain in locomotive engineering," but there was a cause for the rapid wear if it only could have been discovered, and it would be a good work in the cause of knowledge if those who come in contact with "mysterious" cases of this kind would display energy and ingenuity in finding out play energy and ingenuity in finding out their origin. Complaints that we have heard made

about the tires of certain locomotives wear-ing bally in comparison to others are sus-ceptible of easy explanation. Tires wear in two ways. The weight of the engine pressing upon the drivers leads to abrasion of the surface coming in contact with the rail, and as the wheels roll round the tire wears away by the minute bruised particle drop-ping off. That is the wear of rolling friction. The second method of wear is that of sliding friction, where the slipping of wheels on the rails grinds away the tires, as an emery-wheel wears away the surface from any erticle put in contact with the refrom any erticle put in contact with the re-volving face. The sliding friction where it comes much into action is by far the most disastrous to the life of locomotive tires. Inordinate slipping of driving-wheels re-sults from two leading causes—very hard tires and too little weight on the drivers. The art of making steel tires is so highly averfaced that tires too head, for expensived. The art of making steel tires is so highly perfected that tires too hard for economical service are rarely produced. When an engine is noted for slipping badly the cause is nearly always that the cylinders transmit too much power for the adhesive weight upon the drivers. The engineering world has never discovered or settled upon a limit of the weight that can see a placed on of the weight that can safely be placed on driving-wheels, but a few years ago Mr. Chanute and a few other engineers insisted on limiting the weight on each wheel to 12,000 pounds. This teaching for a time exerted powerful influence upon the designing of our locomotives, and its effect is still ing of our locomotives, and its effect is still apparent on many roads. The weight was insufficient for engines with cylinders larger than 15 x 24 inches, with drivers 5 feet in diameter, but many large cylinder engines were built with the weight on the drivers little beyond the limit mentioned. Slippery locomotives and the attempted remedy of a stream of sand constantly dropping on the rails will always be found on a road or division where the tire found on a road or division where the tire mileage is low. While investigating this subject we obtained some carefully collected statistics relating to the wear of tires on dif-ferent classes of locomotives. The informaferent classes of locomotives. The information gave the capacity of the cylinders, the size of driving-wheels and the weight upon them, the kind of service the engine was employed upon and the mileage made upon 1st inch of tire wear. The figures indicated that the man at the throttle had a good deal to do with the conservation or destruction of tires a matter which most master mechanical contents. of tires, a matter which most master mechan-ics are perfectly competent to deal with, but on the whole the tire wear was in the inverse ratio to the weight on the driving wheels.
The case of two classes of eight-wheel freight engines running on one division and doing similar service may serve as a specimen of the whole. All the engines had driving-wheels 57 inches diameter. The first class had cylinders 17 x 24 inches and 28 tons on the driving-wheels. They ran an average 5476 miles per 1-6 inch wear of the. The second class of engines had cylinders 13 x 24 inches, and the weight on the drivers was 26 tons. They made an average of 2945 miles per  ${}_{1_R}^{1_R}$  inch wear of tire. Where a master mechanic is troubled with unequal wear of tires he should classify his loco-motives, showing the tractive power of cylinders and the weight on drivers. Where this is done valuable information will nearly always be obtained if the tire wear is care-

fully ascertained. A locomotive boiler with too little heating . surface may be made to steam better by increasing the size of the fire-box. Instances are on record where locomotives have been greatly improved by having had the backs of the fire boxes taken out and the fireboxes lengthened 12 inches.

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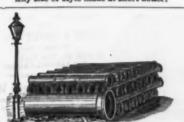
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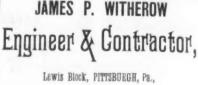


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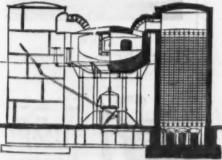
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Complaints that we have heard made

about the tires of certain locomotives wearing badly in comparison to others are susceptible of easy explanation. Tires wear in two ways. The weight of the engine press-ing upon the drivers leads to abrasion of the surface coming in contact with the rail, and as the wheels roll round the tire wears away by the minute bruised particle drop-ping off. That is the wear of rolling fric-tion. The second method of wear is that of sliding friction, where the slipping of wheels on the rails grinds away the tires, as wheels on the rails grinds away the tires, as an emery-wheel wears away the surface from any stricle put in contact with the revolving face. The sliding friction where it comes much into action is by far the most disastrous to the life of locomotive tires. Inordinate slipping of driving-wheels results from two leading causes—very hard tires and too little weight on the drivers. The art of making steel tires is so highly perfected that tires too hard for economical perfected that tires too hard for economical service are rarely produced. When an enservice are rarely produced. When an en-gine is noted for slipping badly the cause is nearly always that the cylinders transmit too much power for the adhesive weight upon the drivers. The engineering world has never discovered or settled upon a limit of the weight that can safely be placed on driving-wheels, but a few years ago Mr. Chanute and a few other engineers insisted on limiting the weight on each wheel to 12,000 pounds. This teaching for a time exerted powerful influence upon the designing of our locomotives, and its effect is still ing of our locomotives, and its effect is still apparent on many roads. The weight was insufficient for engines with cylinders larger than 15 x 24 inches, with drivers 5 feet in diameter, but many large cylinderengines were built with the weight on the drivers little beyond the limit mentioned. Slippery locomotives and the attempted remedy of a stream of sand constantly dropping on the rails will always be found on a road or division where the tire mileage is low. While investigating this While investigating this mileage is low. subject we obtained some carefully collected subject we obtained some carefully-collected statistics relating to the wear of tires on different classes of locomotives. The information gave the capacity of the cylinders, the size of driving-wheels and the weight upon them, the kind of service the engine was employed upon and the mileage made upon of the control of that the man at the throttle had a good deal to do with the conservation or destruction of tires, a matter which most master mechan-ics are perfectly competent to deal with, but on the whole the tire wear was in the inverse ratio to the weight on the driving wheels. The case of two classes of eight-wheel freight The case of two classes of eight-wheel freight engines running on one division and doing similar service may serve as a specimen of the whole. All the engines had driving-wheels 57 inches diameter. The first class had cylinders 17 x 24 inches and 28 tons on the driving-wheels. They ran an average 5476 miles per 1-6 inch wear of the The second classes of accines had cylinders 18 x 24. second class of engines had cylinders 18 x 24 inches, and the weight on the drivers was 26 tons. They made an average of 2945 miles per \( \frac{1}{16} \) inch wear of tire. Where a master mechanic is troubled with unequal wear of tires he should classify his locomotives, showing the tractive power of cylinders and the weight on drivers. Where this is done valuable information will nearly always be obtained if the tire wear is carefully ascertained.

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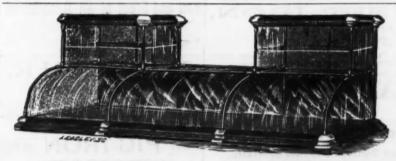
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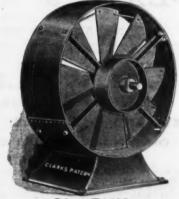
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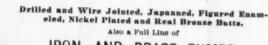


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DETROIT, MICH. Correspondence Solicited and Satisfaction Guaranteed. Changes in the Blast-Furnace Industry in the Past Five Years.

Many curious and interesting facts appear in the pages of the new "Directory" of the Iron and Steel Association, which give to them a historical as well as descriptive value, which are referred to in the follow-

ing words, in the preface:

The oldest furnaces in the country are Oxford, in New Jersey, and Cornwall, in Pennsylvania, both built in 1742. We regret to learn that Oxford is now out of blast and not likely to make any more pig iron. Cornwall is now idle, but has not been abandoned.

All the furnaces in New England now use charcoal. The furnace at West Stockbridge Mass., was the last to use anthracite, and it has been out of blast for several years. Vermont, which once had several active furnaces, has not had a furnace in blast since 1882. There is not now one charcoal furnace in New Jersey, where formerly there were many.

The manufacture of pig iron with coke nade in Central and Western Pennsylvania has made rapid progress in many eastern localities in late years. This fuel is now largely used as a mixture with anthracite in furnaces which formerly used anthracite exclusively. The use of raw coal in furnaces west of Pittsburgh is also rapidly giv-

5 or 6 tons of pig iron daily Speaking of Pennsylvania, there are yet remaining in that State of rich mineral fuel 24 charcoal

that State of rich mineral fuel 24 charcoal furnaces. No two of these furnaces are under one management. Ohio still has 16 charcoal furnaces in the Hauging Rock region, but only one outside of that district. The Hanging Rock charcoal furnaces are generally banked up on Sunday, and blast is only stopped on this day in some of the bituminous furnaces of this district. There is also a charcoal furnace in Michigan which stops its blast on Sunday. stops its blast on Sunday.

The great shrinkage in the number of

blast furnaces in Kentucky certainly ought not to have happened. There are now only six furnaces in the State that do not belong in the abandoned list. We have transferred to this list in recent years 15 charcoal furnaces and one bituminous furnace. Not one new furnace has been built in Kentucky since 1881, and the two furnaces built in

Only two furnaces and the two furnaces built in that year have been abandoned.
Only two furnaces are now left in Indiana. In Michigan all the furnaces use charcoal except one, and it has not been in operation.

ation for years.

The manufacture of coke pig iron is now general in most of the Southern States which have a pig-iron industry. Only a few years ago these States made only charcoal pig iron. The introduction of the use of coke in the Southern States has most benefited the pig-iron industry of Virginia, Tennessee

Philadelphia is usually referred to as a leading iron center, and so it is if its immediate surroundings be considered, but it does not itself produce much iron or steel. Its iron and steel industries have made no headway whatever in the last 15 years. Nor does Cincinnati make any progress as an iron center. It is not so prominent in this respect as it was in the palmy days of the Hanging Rock region. It is conspicuously lacking in a single steel plant of any description whatever. Upon the other hand, Pittshurgh and Chicago are making rapid progress in producing iron and steel, and to-fit is conspicuously lacking in a single steel plant of any description whatever. Upon the other hand, Pittshurgh and Chicago are making rapid progress in producing iron and steel, and to-fit is conspicuously lacking in the steel plant of any description whatever. Upon the other hand, Pittshurgh and Chicago are making rapid progress in producing iron and steel, and to-fit is conspicuously lacking in the steel plant of any description. Pittshurgh and Chicago are making rapid progress in producing iron and steel, and today they are the great iron and steel cities of the country. Cleveland and Wheeling more than hold their own as producers of iron and steel, and San Francisco is also making steady progress, but Milwaukee, Detroit, St. Louis, Boston and Baltimore are not so active as they have been, while Buffalo, once active, has almost ceased to be regarded as an iron city. This list embraces all of our large cities which have been prominent in the manufacture of iron or steel. New York City never attained any prominence in this direction. any prominence in this direction.

Thus in the edition of two years ago, to go no resistances.

further back, 675 furnaces were credited with a total annual capacity of 9,300,000 net tons, or an average of 13,777 tons each. In the present edition 578 furnaces are credited with a total annual capacity of 9,960,700 net tons. with a total annual capacity of 9,960,700 net tons, or 17,233 tons each. The furnaces which have been built in recent years are chiefly of large size and modern equipment, while those which are transferred to the abandoned list are chiefly of small size and antiquated equipment. The figures of total annual capacity are derived from individual returns of furnace owners, and are based upon the assumption that it is possible for upon the assumption that it is possible for all the furnaces in the active list to be in blast for a whole year. As this condition is impossible under the most favorable circumstances if all or the condition is the condition in the condition in the condition is the condition in the condition in the condition is the condition in stances, it follows that the actual aggregate capacity of the furnaces of the country is much less than the nominal capacity.

#### Working Costs of Fast Atlantic Steamers.

In a review of two papers on Atlantic steamers recently read before the British Institution of Naval Architects the Engineer, of London, says:

One of the first things to suggest itself

about such ships as the Etruria or the Umbria is the vast cost at which their effifurnaces which formerly used anthracite exclusively. The use of raw coal in furnaces west of Pittsburgh is also rapidly giving away to coke.

Carnegie Brothers & Co., Limited, are now building two furnaces at their Edgar Thomson Works, which when completed will make seven in all. These seven furnaces will have a combined annual capacity of 450,000 net tons of pig iron. Adding the capacity of the the two Lucy furnaces to that of the Edgar Thomson furnaces, the whole nine furnaces being practically under one management, the total capacity of the nine furnaces is about 600,000 net tons per annum. This is the largest and milwaukee, 432,000 net tons. The capacity of the Carnegie system is probably the largest furnace capacity under one management in this country. The next largest is that of the furnaces of the North Chicago Rolling Mill Company, at Chicago and Milwaukee, 432,000 net tons. The capacity of the Carnegie system is probably the largest furnace capacity under one management in the world.

Allegheny County, Pa., built its first furnace in this century (Clinton), as late as 1859; it now has 17 completed furnaces and three in course of erection. No other sections are desirable with the vast cost at which their efficiency has been obstained—a cost which no one in his senses would have suggested a quarter of a century ago. We do not here so much refer to the outlay of capital on ships and engines, enormous as that is, as on the working expenses. Let us compare the performance of the Etruria with that of the Britannic. An interval of nearly 10 years separates the construction of the two ships. The Britannic is still running. Her consumption is, we believe, about 90 tons of coal per day of 24 hours. Her parsages average 8 days 9 hours outward and 8 days 2 hours homeward. Her consumption may allowing for getting up steam, &c., be taken at 840 tons per voyage. The Etruria's fast-est passage has been 6 days 5 hours 31 minutes. Her average we do not know, but we shall not be far wrong if we call it 6 days 12 hours. management in the world.

Allegheny County, Pa., built its first furnace in this century (Clinton), as late as 1859; it now has 17 completed furnaces and three in course of erection. No other section of the country has made as rapid progress in the manufacture of pig iron as Allegheny County.

Notwithstanding the tendency of late years to build large furnaces—each of which will do the work of a dozen or a still to the control of the country has been carry doubled to save 36 hours in time. This is startling enough, but figures yet more remarkable may be obtained. Let us take, for example, the Servia, and compare which will do the work of a dozen or a letter is, in round numbers, 6½ days; Allegheny County.

Notwithstanding the tendency of late years to build large furnaces—each of which will do the work of a dozen or a score of the old furnaces—there are still to be found running in Pennsylvania, Virginia and some other States small and old-fashioned coal-blast furnaces which make only given by Mr. John, of the Barrow Shipbuild-coa 6 tons of rig iron daily. Speaking of ing Company, and neglecting coal spent in ing Company, and neglecting coal spent in getting up steam, &c., we have for the Etruria, 315 × 6.25 = 1968.75 tons; and for the Servia, 205 × 7 = 1435. That is to say, over 500 tons of coal are expended in shortening the passage by 18 hours. It may be urged that this is not all, and that the difference in the dimensions of the two vessels must be taken into account. But it so happens that the Servia is a larger ship than the Etruria, the displacement of the former vessel being 10,960 tons, and of the latter 9860 tons, or 1100 tons less. The indicated horse-power of the Servia is 10,300, and that of the Etruria 14,321. The latter ship has 1.45 indicated horse-power per ton of displacement; the former a little less than 0.94 indicated horse-power per ton of displace

The enormous increase in horse-power required to put on a knot or a fraction of a knot in speed explains the difference in the coal consumption of the two ships. Nor does the additional expense end here. It will be seen that not only can the Servia make a trip with 500 tons less coal than the Etruria, but she has available for some purpose or another 1100 tons more displace-ment. Part of that can be devoted to cargo, part to passenger space, even after due allowance is made for the greater weight of the hull. But, furthermore, the boilers and engines of the Etruria weigh a great deal more than do those of the Servia. The more PIG IRON,

WHEEL IRON.

The oldest iron-ore mine in the United States that is now in operation is the Iron Hill Mine, in Deleware, which was discovered opened. Ore is still taken from this mine and used in Principio Furnace, Maryland, the first stack for which furnace was built in 1723. Although the Iron Hill Mine supplied ore to a Maryland furnace, there is now no furnace in Delaware, in which State it is located, nor has there been for many years.

The more carefully we investigate the construction and performance of the two ships the clearer does it become that the price paid for reducting the time of transit between Liverpool and New York seems to be out of all proportion to the result gained. If such a ship as the Etruria can be made to pay her way, then the profite earned by such a vessel are now no furnace in Delaware, in which State it is located, nor has there been for many years. years.

The Atlantic trade are partly supported out
of the earnings of their slower sisters. Mr.

leading iron center, and so it is if its im-

It is said that an engineer of Pesth, Mr. Pradanovic, has lately used dynamite for driving piles. A circular cast-iron plate, 15 inches in diameter and 3% inches thick, is fixed on the pile to be driven, in a perfectly horizontal position. A dynamite cartridge made in the form of a disk, 6 inches in diameter and V inch hick and contains.

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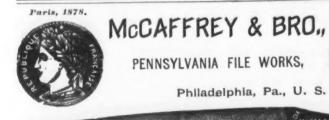
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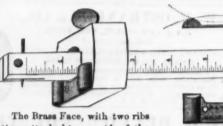
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LONDON, August 28, 1886

THE SITUATION

startled by the bloodless revolution in Bulgaria. This coup on the part of Russia, coupled with the recent closure of the port of Batoum and the speech of the Czar anent the Black Sea fleet, engenders great uneasimay be the North. That there must and will be some further movement is considered certain. The only questions are as whom it will be against and when. The internal condition of Russia in Europe is known to be most serious. The State is nearly bank-rupt, and business is in a state of hopeless rupt, and business is in a state of hopeless depression. The people are very dissatisfied, and there must be the usual resort to a foreign war to keep the nation quiet in its home affairs. In the Balkans Russia seems determined to secure and retain predominance; consequently it is only a matter of time for a desperate conflict to ensue with Austria. Turkey is believed to have been "squared" for the time being with specious Muscovitish promises, but when the critical period arrives there is no doubt that Austria will find an ally in Turkey. The position of Austria is indubitably very serious, as the Hungarians, Czechs and Croats are all uneasy under the domination of the Austrians proper, and it is feared that Russia may cripple the dual monarchy by exciting internal dissensions. However, Bismarck holds the keys of the stead by Austria as against Russia and if Limited, Thasa orders will keen the resistance of the Austria and if Limited. Thasa orders will keen the resistance of the Austria and if Limited. Thasa orders will keen the resistance of the Austria and if Limited. Thasa orders will keen the resistance of the Austria and if Limited. Thasa orders will keen the resistance of the state of the stand by Austria as against Russia, and if necessary will aid by force of arms. In the same way Great Britain would undoubtedly sympathize with and assist Austria, for the sympathize with and assist Austria, for the people of this country cherish a deadly hatred of Russia—as is only natural for the freest country of the world to detest the unbridled despotism of the Czar. Thus it appears that Russia may have to meet Austria and Turkey combined, while England will keep quiet Greece, and Germany check the revengeful designs of France. The unknown factor of the problem is China, which is hostile to Russia but would probably not take active steps unless paid for and prompted to do so by some European power. China would certainly not act with France; hence the former power would either remain neutral or act in concert with England and Germany. Thus the political situation is bad, and has cruelly damped the rising hopes of those who have been building tion is bad, and has cruelly damped the ris-ing hopes of those who have been building themselves up on the fond anticipation of an early change for the better in the iron and steel trades. The only excuse for that hope in reality was the resolution to restrict pro-duction in Cleveland, and even that was but a poor foundation on which to build. Spec-culator will build upon anything however. culators will build upon anything, however, as is evinced by the circumstance that this particular decision sent up railway stocks, notwithstanding the indubitable fact that by limiting the output the carriage of minerals, STANLEY'S PATENT FACE-PLATE FOR GAUGES.

STANLEY'S PATENT FACE-PLATE FOR GAUGES.

That the idea of an improvement has been sedulously spread and believed is undoubted. To-day, for instance, I received an inquiry from the country asking if it were true that iron was likely to go up 22 % ton. I could only reply, of course, that in my opinion it was scarcely likely to go up 22 % ton, to say nothing of the £2. While saying this I must admit that there was a rather better feeling abroad last week. People are beginning to return from their seaside holidays, and seem so much refreshed thereby that they are prepared to enter upon new business with renewed and augmented zest. If they are all of that way of thinking it is just possible that we may witness a like spurt before long.

RESTRICTION IN CLEVELAND.

RESTRICTION IN CLEVELAND.

The resolution of the Cleveland iron-The resolution of the Cleveland iron-masters to limit the output of their ordinary pig iron to the extent of 20 % for an indefinite period has imparted some strength to the market, although doubts were freely ex-pressed last week as to the practicability of the scheme. This morning, however, four furnaces have been stopped at Bolckow, Vaughan & Co.'s, and I hear that the plan has been so arranged that its faithful ob-servance is practically certain. The whole servance is practically certain. The whole thing has been carefully devised under penalties for breach, &c., and by pooling the make and sales it is believed that the project will be properly and efficiently carried out. Whether the limitation is or will be sufficient to reduce the stocks yet remains to be proven.

SCOTCH PIG IBON

has been somewhat stronger on the week, owing to the Cleveland plans and also by reason of the limitation of the production of Coal which is being carried out by the miners in Scotland. There are now 82 furnaces in blast, against 90 a year ago. In Connal's stores there are 868,981 tons (an addition of 4113 tons last week), as compared with 616,427 tons this date last year. The shipments to date are 39,041 tons behind, while the imports of Middlesboro' pig into Scotland are 26,048 tons in arrears this year. Cur-

Deliverable	along	810	le	i.					No. 1.	No. 8.
Gartsherrie, at	Glasg	OW	r.		 		 			41/
Coltness,	0.0				 	0	 		46/6	48/6
Langloan,	18								43/	41/
Bummerlee,					 				45/	41/
Calder	0.0								45/6	40/6
Carnbroe,	9.6								40/6	897
Clyde,	6-6								42/6	39/6
Monkland.	4.6								40/6	36/6
Govan, at Broo	mielav	w .	Ċ						40/6	36/6
Shotts, at Leith									44/	49/6
Carron at Gran									46/6	48/6
Giengarpock, a										88/6
Eglinton,	0	1	-	1			į		89/6	38/
Dalmellington,		1			i				40/6	88/

MIDDLESBORO' PIG IRON

has naturally been strengthened by the action of the ironmasters, and values are already 1/6 19 ton better, despite the addition of over 5000 tons to Connal's Middles-

English Letter. | boro' stores last week. Current prices for G. M. B., f.o.b. at makers' wharves in the

1 66	)B	, for net	Casi	i, are	0
No.	1	Foundry		33/6 [	Mottled 29/6
	z	44		32/6	White 28/0
90	3	8.0		817	Refined metal 46/
0.0	4	4.0		80/6	Kentledge 33/6
9.6	4	Forge		907	Clindon 00 /

HEMATITE PIG IRON

and some members of the trade here had begun to foster the idea that we were on the eve of a very considerable improvement in the iron trade. I write of all this in the past tense, because to-day Europe has been startled by the bloodless revolution in Rul. has had in it some elements of hopefulness, work, against 42 a year ago. Stocks there are decreasing, being now 110.904 tons in the stores, while shipments are increasing, being 3262 tons better last week and 54,947 tons better to date this year. Quotations:

	-		
Cleator	No. 1 42/3	No. 2.	No. 8.
Lonsdale	42/	41/9	41/6
Workington	42/	41/9	41/6
West Cumberland	42/	41/9	41/6
Lowther	42/	41/9	41/6
Distington	42/	41/9	41/6
Solway	42/	41/9	41/6
Maryport	42/	41/9	41/6
Harrington	42/9	42/8	41/9

is virtually without changes other than those referred to elsewhere in this report. Crude iron may be called steadier all round, 2765 tons being given to John Brown & Co., Limited, and 2143 tons to Cammell & Co., Limited. These orders will keep the respective works employed for many months to come. Steel rails are quieter this week, although an additional 6000 tons for the Alabama Railway have been ordered at a price slightly ahead of what the 4000 tons for the same railway were taken for last week. As to prices generally the movement is upward, and one or two small transactions bave taken place within the last few days upon a basis equivalent to about £3.15/,f.o.b. nearest port, for standard sections. The Southern Mahratta Railway Company are inquiring for 9071 tons, and Company are inquiring for 9071 tons, and the agent-general of South Australia asks for 7857 tons.

AMERICAN GOODS IN LONDON.

I take the following from the Ironmonger (London): "A European agency for a number of American manufacturers has just been opened at 60 Gracechurch street by Welsh & Lea, Fhiladelphia, Pa., whereat they are showing various lines in hardware generally. Several novelties are included, among which is a subher aton and designed to obviets. several noveties are included, among which is a rubber step pad, designed to obviate all dauger of slipping in wet or fresty weather. Bench planes adapted for all kinds of work comprise a line in which a great trade is expected. They include Bailey's patent ad justable planes, stamped out entire from English-made cast steel, and fitted with a screw which adjusts the planes reasons. screw which adjusts the plane-iron as required. For smooth planes an additional adjustment is provided which moves the screw to a greater nicety than can be done when turning the screw itself by done when turning the screw itself by hand. These planes are also made in wood. In addition there are the Stanley adjustable planes, adjusted by a lever and rendered adaptable for either fine or coarse work, and also the improved patent adjustable circular plane. Samples of other types and patterns are also kept. In spades and shovels there are shown some first class specimens, especially of Hussey, Binns & Co.'s make, the most attractive being what is described as the newest improved tamping shovel and the smooth-back locomotive coal scoop. Of edge tools of many kinds, mallets, hammers and saws, there is a goodly collection, many of them being the first brands of the States, while the finer makes of saws are by Richardson Brothers. Coffee grinders and roasters by Lane Brothers are also an excellent line. The former are adjustable, so that any degree of finences in the spinding can be obtained. The former are adjustable, so that any degree of fineness in the grinding can be obtained, while by the simple turning of two screws the internal parts that require fre-quent cleaning can be readily got at. The Larson & Torgerson Desk Company's office desk is a noteworthy feature."

THE HARDWARE TRADES

are said to be a trifle better, and more busiare said to be a true cetter, and more ousi-ness reported to be in hand at the leading manufacturing centers. The autumn and winter season orders should now be under execution, so that we may expect to hear of augmented activity for some two or three months ahead. For your fall trade I learn many good orders are being placed in this country. That is especially the case at Sheffield and Birmingham. The trade of Sheffield with the United States has during the past quarter exhibited a gratifying in-crease. The American consul at Sheffield has made up the returns of the exports from that district to the United States for the quarter ending June 30, and the totals show a large increase over the figures for the corresponding half of 1885. As this follows upon an increased return for the first quarter of the present year, it affords ground for hoping that a permanent revival of the American trade has set in. The exports of steal during the quarter, amounted to £64. steel during the quarter amounted to £6,,-241, as against £55,202 in the corresponding quarter of last year—an increase of £9038, or 16.3 per cent. This is in spite of a great fall in values, and is therefore of special imfall in values, and is therefore of special importance. But the exports of cutlery show a much greater increase, the figures for the quarter just ended being £45,277, as against £27,671. This is an increase of £17,587, or 63.5 per cent. The total exports from the district are £129,443, against £103,461, an increase of £15,982, or 15.4 per cent.

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the acceptance of lower prices for cokes. In London some business has been done at 13/60 13/3 for ordinary IC cokes. At Liverpool a considerable amount of business is reported to have been done at the lower rates, which stand at about 13/1½ @ 13/3 for Bessemer steels with coke finish. In some quarters as low as 12/6 for ordinary brands is predicted, but that result is not by any means a certainty. For Siemens steel plates with coke finish orders have been placed at 13/9 IC, numerous well-assorted specifica-tions being held back for about 3d. less In charcoals no change of momoney. ment is noticeable.

#### Atlantic Steamers.

In a paper on "Atlantic Steamers," presented to the British Institution of Naval Architects at its last meeting, Mr. W. John reviews in an interesting manner the history

of ocean steamships.

The Great Eastern, he remarks, steaming up Milford Haven about 25 years ago, be-tween two lines of the Channel Fleet of old—two and three decked wooden line-ofbattle ships—the whole fleet saluting with yards manned, was a sight to be remem-bered. More than this, that ship, with all her mournful career, has been a useful lesson and a useful warning to all naval architects who seriously study their profession—a lesson of what can be done in the safe construction of huge floating structures, and a warning that the highest flights of constructive genious may prove abortive if not strictly subordinate to the practical con-ditions and commercial requirements of the times. The Sirius and Great Western crossed the Atlantic in 1838, and in 1840 the first ship of the since celebrated Cunard Company made her first voyage. This was the Britannia, which, with her sister ships the Arcadia, Caledonia and Columbia, kept up the mail service regularly at a speed of about 8½ knots an hour. The Britannia was 207 feet in length between perpendiculars, and 34 feet 4 inches extreme breadth, 22 feet 6 inches depth of hold, 423 horse-power—nominal—and 1156 tons burden, built of wood and propelled by paddles. In 1850 the Collins Line started in opposition to the Cunard, and after a series of disasters collapsed in 1858. This was three years after the Persia, the first Cunader built of iron, had been completed. In 1850 also the Inman Line was started In 1850 also the inman Line was started with the City of Glasgow, of 1600 tons builders' measurement and 350 horse-power. She was built of iron, and was the first screw steamer sent across the Atlantic from Liverpool with passengers, and was the pioneer of the great emigrant trade which Mr. Inman, above all others, did so much to develop and make chem, and comportable develop and make cheap and comfortable for the emigrants themselves, as well as for the emigrants themselves, as well as profitable to his company. That the builders of the celebrated old Great Britain in 1843, and Mr. Inman in 1850, should have pronounced so decisively in favor of the screw propeller in preference to the paddle for ocean steaming is a proof of their true practical judgment, which time and practical exercises have made abundance. and practical experience have made abundantly clear. While the Cunard Company went on developing its fleet from the early wood paddle steamer Britannia of 1130 tone in 1840 to the iron paddle steamers Persia &c., in 1858, the iron screw steamer China of 1862, to the still more important screw steamers Bothnia and Scythia, vessels of 4335 tons in 1874, the Inman and other lines were as rapidly developing in speed and size, if not in numbers. The year 1874 is memorable, for it saw the White Star steamers Britannic and Germanic put into the water, as well as the Inman steamer City of Berlin and the two before-mentioned Cunard steamers Bothnia and Scythia. By the addition of these two ships to their fleet the

White Star Line, although started in 1870, reached a front rank position in the New York passenger trade. The author gave in separate tables the logs of several of these ships, some from published documents and some kindly furnished by the owners. The Great Western had crossed the Atlantic from Reistel to New York in 16 the Atlantic from Bristol to New York in 15 days as early as 1838. The first Cunard steamer, the Britannic, was about the same and it soon became evident that another important stride had been made in the Atlantic passenger trade which would lead to most important results. The results, as we all know, have been sufficiently startling. The Guion Line, which had started in 1866 with the Manhattan, had now the fastest passenger ship on the Atlantic. In spite of burning some 50 per cent more coal than the Britannic, the ship was an obvious commercial success. The spirited policy which brought her into existence was appreciated by the public, and the other lines had to move forward. Then followed a period of rivalry, the Cunard Company building the Gallia and Servia, the Linnan Company the City of Rome, and the Guion Line the Alaska, all of which were completed in 1881, and afterward the Oregon for the Guion Line, 1883; the Aurania the same year for the Cunard Company, and, later still, the America for the National Line, and the Cunard Company the Umbria and Etruria for the Cunard Com-Guion Line, which had started in 1866

Umbria and Etruria for the Cunard Com-pany in 1885.

Since the completion of the Etruria, for various reasons there has been a pause in the tremendous strides made since 1879, and we may briefly review the results. Taking the Britannic as a standard with her royears' average of 8¼ days across, and her quickest passage of 7 days 10 hours 53 seconds, we have now the following steamers of higher speeds. Taking them in the order of their absolutely fastest passage out or home they stand thus:

1	Etruria					Day	s. Hours.	Min.
2,	Umbria (sister ship	0.					slightly lon	ger 31
3,	Oregon					. 6	10	35
4.	America					. 6	13	44
6,	City of Rome		٠	0		. 6	18	0
7	Alaska Servia				0	. 0	18	87
R	Aurania	0 1				0	28	55
υ,	ALMI CHILLOS			0	0 1	. 6		1

It will thus be seen that from the 15 days' passage or thereabouts of the earliest Atpassage or thereabouts of the earliest Atlantic steamers we had got down in the days of the Scotia to about 9 days; in the Brittanic to 8¼ days, and at the present time we have got to 6¼ days, with seven ships afloat that have done the passage under 7 days, and capable of making their average passages, range between 6½ and average passages range between 614 and

7¼ days.
Ranged in order of gross tonnage, these eight vessels stand as follows:

1,	City of	1	Ł	o	ı	m	ŧ	۹.																								s		1	a
¥,	Oregon.												۰																			2	7	181	7!
a,	Aurania		۰				۰			0	٠		۰	۰	۰		۰															.7	1	21	R٤
4,	Servia			٠			٠																									2	1	2	15
Э,	Umbria.																٠															2	1	15	25
υ,	Etruria																															2		26	W
7.	Alaska.																															d	. 7	8.6	24
8,	America	,	,			,	,		,	,		*						í		è	,	,	,			K .	6	,	,	,	į	5	d	52	28

Here the America shows to advantage, for while being eighth in size she is fourth in point of speed, and from what the author can learn, although he had no authenticated details on the subject, he believed she is economical in coal consumption. One of the most difficult subjects in connection with the propulsion of ships on which to get absothe propulsion of same on which to get absolutely accurate data is that of coal consumption. The records of from six to eight hours' trials for the purpose of ascertaining the coal consumption are absolutely worththe coal consumption are absolutely worth-less, as all shipbuilders and engineers know, less, as all shipbuilders and engineers know, and, so far as English ships are concerned, they are never attempted. Foreign owners frequently stipulate for such trials in their contracts with English shipbuilders, and get wonderfully economical results on paper, but the fact that the trials only extend over a few hours renders them valueless, however carefully the coal may be weighed during that period. An authentic record of the absolute quantity of coal consumed, say by each of the eight fastest Atlantic liners, together with their average indicated horsepower, on the voyage for a series of yovages power, on the voyage for a series of voyages would be extremely valuable.

#### A Railway-Tie Nursery.

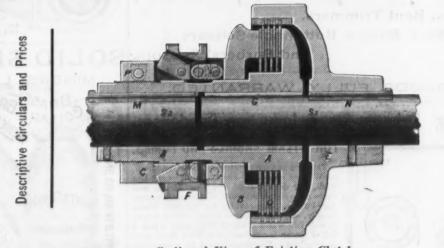
Hon. R. W. Phipps, Forestry Commissioner for Ontario, has been for several months devoting his time to visiting the principal fruit tree nurseries and estates, where attention is given to arboriculture for timber and fuel. In a recent letter from Southern Kansas to the Toronto Globe he

writes:
"One railway board here, knowing that "One railway board here, knowing that the growing of trees when set about in earnest is neither a slow nor difficult task, have established in Kansas the largest artificial plantation of forest trees in North America. These railway gentlemen themselves gave out the contract for planting over a square mile of land with young saplings of the catalpa and ailantus, and their president, observing the success of their experiment, and impressed with its probable excellent financial results, has had planted at his own expense as a speculation as much more. These are situated near the little town of expense as a speculation as much more. These are situated near the little town of Farlington, Kan. These plantations, now bare of leaves, stretch far over the undulating prairie in full view of the town. The different sections have been planted, it appears, respectively two, four and six years ago. About one-fourth is planted with the citation and the rest with the catalogue and ago. About one-fourth is planted with the ailantus, the rest with the catalpa, and a few—perhaps 1000 trees—of white ash. Those first planted are now about 25 feet in hight, the last about 12. Some of the taller are 7 inches through the stem. The first seedlings were brought from Illinois by the carload, the rest grown in seed beds here. There are in all about 3,000,000 of trees in full-growing vigor on these plantations, this calculation days as early as 1838. The first Cunard steamer, the Britannic, was about the same speed, from 8½ to 8½ knots an hour. The average duration of the Cunard voyages in the year 1856 was 12.67 days from Liverpool to New York, and 11.03 days from New York to Liverpool. The Bothnia, in 1874, reduced the passage to about nine days. The White Star Britannic, in 1876, averaged 7 days 18 hours 26 minutes outward from Queenstown to New York, and 9 days 6 hours 44 minutes homeward, and has averaged for the last 10 years 8 days 9 hours 36 minutes outward, and 8 days 1 hour 48 minutes homeward. The City of Berlin, of the Inman Line, also built in 1874, 8 days 10 hours 56 minutes, and homeward 8 days 10 hours 56 minutes, and for the nine years, from 1875 to 1883 inclusive, averaged outward 8 days 8 hours 34 seconds, or, putting 1 that rounder figures, the Britannic had reduced the average passage between the two points to 8½ days, and the City of Berlin to 8½ days, and the City of Berlin to 8½ days. From the year 1874 on to 1879 no further advance was made in Atlantic steaming, but in that year the Arizona was added to the Guion Line, and it soon became evident that another important stride had been made in the At-randered partly mechanical. Extensive vague idea or the large amount of wood the closely-planted groves can spare in their process of growth. This process, partly natural, is also by the art of the planter rendered partly mechanical. Extensive masses of young trees planted in this manner are restricted to but one method of advancement—the endeavor to throw out masses of leaves to the light and air of the uncersure. leaves to the light and air of the upper sur-

trees, the profits seem likely to be very large."

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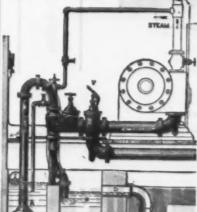


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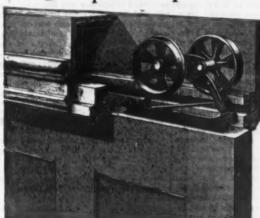


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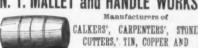
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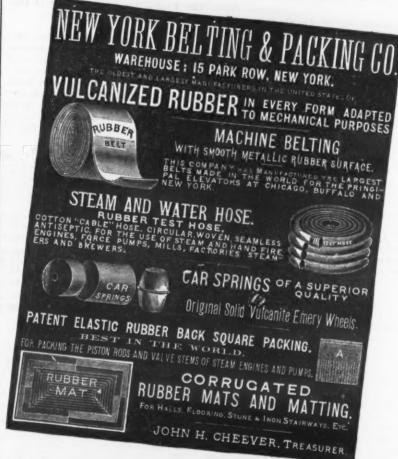
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#### Economical Quay Walls.

Though the cost of foundations by means of compressed air has been greatly reduced within recent years, there are cases where pilework foundations are still advantageous. As quay walls must be accessible for vessels, it is impossible to strengthen them like ordinary retaining walls by a large batter on the face, by widening out the foundation at the face, by widening out the foundation at the outer toe, or by a mound of rubble in front. Accordingly, as far back as 1837 the plan of pushing forward the foundation by means of sloping piles was adopted at the Glasgow quays. A similar system, with improvements, has been adopted for the new Rouen quay walls, and is briefly described in an abstract of a foreign paper published in the "Excerpt Minutes" of the British Institution of Civil Engineers. The bed of the Seine at Rouen is about 32 feet below the required. at Rouen is about 32 feet below the required quay level, and a layer of silty sand overlies the hard chalk which is found. the hard chalk which is found at about 25 feet below the river bed. Instead of building a quay wall 33 feet high, on an unstable ing a quay wall 33 feet high, on an unstable foundation, or carrying it down to the solid chalk, a wall, only 18 feet high, hes been built upon piles sloping forward toward the front, and reaching down to the chalk. The thrust of the filling for the quay is kept off from the back of the wall by a mound of rubble stone, and by a layer of rubble stone resting upon a pattern supported as piles. resting upon a platform supported on piles, carried back far enough for the natural lope of the filling behind, going between the foundation piles under the wall, not to protrude in front of the face of the wall. The wall rests upon four rows of piles, of which the three front rows have a batter of which the three front rows have a batter of 1 in 5; while the back row, and the four rows supporting the platform behind, are vertical. The lower part of the wall for a hight of 5½ feet is composed of concrete, and is 11 feet wide, and the upper portion is built of rubble masoury, and has a width of 6½ feet at the bottom. The wall has a batter of 1 in 8, and is faced with brickwork. The cost of this wall was about \$120 per linial foot. The latest design of quay wall, which is now being built at Rouen for extending the quays, is similar in construction, but has been caris similar in construction, but has been carried 3½ feet lower down, owing to the increasing draft of vessels coming up to Rouen, and in order to allow heavier weights to be placed near the edge of the quay. The concrete is deposited within water-tight caissons of beech 68 feet long on the top of the piles. The wall is strengthened by iron tierds at intervals of 35 feet, bolted to large blocks of masonry placed about 66 feet back from the face of the wall. The last type of wall costs about \$127 per lineal foot, exclusive of the dredging for placing the toe of the slope low enough for the anticipated deepening of the channel.

The writer then compares the Rouen quay s similar in construction, but has been car-

deepening of the channel.

The writer then compares the Rouen quay wall with the New York quay wall along the Hudson River, as executed since 1876.

The New York wall is similar in type, being a slight wall of concrete and masonry, backed with rubble, and resting upon long vertical and sloping piles; but the piles are surrounded by a rubble mound which projects in front of the wall, and the wall, though higher than the Rouen wall, is much thinner at the base, and its lower portion though higher than the Rouen wall, is much thinner at the base, and its lower portion has been built with grooved concrete blocks. The top of the wall is about 35 feet above the bed of the channel, or about the same as at Rouen; but the piles are driven about 20 feet deeper at New York than at Rouen. The cost of the New York wall, after deducting expenses incurred in the removal of old works, was about \$200 per lineal foot. It is suggested that the experience of Rouen shows that the rubble surrounding the piles at New York might have been safely dispensed wite, that the projection of safely dispensed wits, that the projection of the rubble mound in front of the face of the rubble mound in front of the face of the wall is prejudicial to vessels, and that the cheaper wall of the Rouen type would have been better for New York than the type adopted. It is considered, however, that for a long length of quay the concrete block foundation employed at New York would be more economical than the concrete in mass described in frames. The above guar would be more economical than the concrete in mass deposited in frames. The above quay walls are less durable than the Antwerp quay wall, founded on firm ground, at a depth of about 60 feet below quay level, or intermediate between the depth resched by the foundation piles at Rouen and New York. The Antwerp quay wall, founded by aid of compressed air, is strong enough to resist the thrust of the filling at the back, and also a surcharge of 5 toos per square yard on The Antwerp quay wall, founded by aid of compressed air, is strong enough to resist the threat of the filling at the back, and also a surcharge of 5 tons per square yard on the quay; but it cost about \$469 per lineal foot, or nearly two and a half times the cost of the Rouen wall. The quay wall at Ohent, founded on firm ground met with at a small depth, cost only about \$157 per lineal foot. The concrete well foundations of the Ninth Dock at Havre proved an economical system under the special conditions of the site, having cost about \$174 per lineal foot. Different systems are accordingly advisable under varying conditions; but the Rouen type of quay wall has the advantage of enabling quay walls to be extended at ports which, through want of resources, have hitherto possessed inadequate quay accommodations.

Distressing mine accidents are now so frequent that every means which can be brought into requisition to alleviate the suffering or determine the exact condition of the victims deserves careful attention. At Chancelade, near Périgueux, France, lately, there occurred a mine accident by which five men were imprisoned, and strenuous efforts were made for their rescue. A relief hole was drilled from the top of the hill. It had a diameter of 0.3 m. and adpeth of 70 m. But the hole, unfortunately, did not pierce an accessible gallery. In order to determine, however, the exact state of things in the mine, it was decided to photograph the interior, and for that purpose an impenious photographic apparatus was designed by M. Langlois, of Paris. The possession of the proper and was provided at one and within a mental proper and and Moravian rolling-mill owners have additional threat the substitution of the site, having cost about \$17,00 and for the part of the proper of the proper and the proper of the proper of the proper of the part of the proper of the part of the proper of the

to photograph the interior, and for that purpose an ingenious photographic apparatus was designed by M. Langlois, of Paris. The camera was pivoted at one end within a metallic case, and above and below were placed a number of incandescent lamps that could be lit and extinguished by means of a switch from above. The camera could be pointed at any angle by means of a chain which communicated with the surface, and in this way different views could be taken. At the

op of the well a dark room was built, so that the sensitive plate was not affected, and the apparatus was lowered with the lamps extinguished. After arriving at the bottom the lamps were switched on and the plate in the camera was thus exposed to the light and to the surrounding objects. In this manner a number of different views were obtained.

#### Foreign Markets.

FRANCE.

FRANCE.

Paris, August 25, 1886.—Metals.—There are no signs yet of a revival in the demand. Copper is lower, Lead higher, and Tin and Spelter have been sustained. We quote toward the close, in francs, \$\partial 100 \text{ Kg}\$. Copper.—Chili Bars, 101.25 \( \text{ \overline{\text{ Giv}}} \) (50 \( \text{ Kg}\$.) (50 \text{ Kg}\$.) (70 \text{ Kg}\$.) (8.59. and Pure Corocoro Ore, 105. Tin.—Banca, 271.25; Billiton, 268.75; Straits, 202.59; Australian, 291. and English, 262.50. Lead, 32.25 \( \text{ \overline{\text{ Giv}}} \) (32.50 \( \text{ and Neptler}\$, 36.50 \) (37. From.—The French Iron markets have on the whole been quiet. Till Parliament meets again many projects of public works will remain in suspense. Prices Lave been steady in this city at 14.50 \( \text{ Giv}\$ \) (15 francs \$\frac{3}{2}\$ 100 \text{ kg}. At the North flee Reils, for which the adjudication is soon to come off. Old Rails are tending upward there, and are at present worth 7 francs \$\frac{3}{2}\$ 100 \text{ kg}. At the North the Iron market is quiet, but this does not prevent prices from being firmly held. There is a steady demand for Rivets in the Hardware line. The Roit works and Coundries, on the other hand, are not very busy. The syndicate embracing the North Haute-Marne, Ardennes and Meurthe-et-Moselle has been renewed. In the Haute Marne No. I Coke Merchant is selling at 13 francs; Mixed at 14; Wire Nails No. 18, in bulk, 21.50 \( \text{ 22} \) 2. There is less doing at 8t. Ettenne, in Central France: Merchant still commands 15.50 francs there. Coal still remains dull, but prices remain teady, a speedy revival being looked for—Mont teur des Intérêts Matériels.

teur des Intérêts Matériels.

BRUSBELS, August 25, 1885.—Iron.—The formation of the syndicate still exercises a good influence on the Belgian Iron market. We do not hear of a giving way of prices any more, although not all works are occupied to the extent of their capacity. Meanwhile the syndicate's efforts have tended to establish a correct proportion of value between the different species of Finished Iron. This does not imply, however, that Pig Iron also should rule any higher than it does at present; it can only be expected to rise if production be curtailed somewhat in England. As for Finished Iron, it would rise if makers in Germany succeeded in forming a syndicate after the model of our own. Meanwhile we quote Charleroi Foundry Pig, 5.75; Luxembourg do., 3.90; Athus Forge Pig, 3.80; Charleroi, 37 & 47; Merchant, 10 francs: Angles, 11.50; do for vessels, 12.25; Sheets, No. 2, 12.50; No. 3, 14.50; Commercial, 15.50; Thin, 18.50; No. 4, 20.90; Steel Sheets, 15.50 francs ¥ 100 kg. Some orders for steamers and cars have dropped in during the week. The gen eral business outlook is rather encouraging than otherwise, and the Iron trade ought to be favorably influenced by it. Crops have on the whole turned out satisfactory in Europe; nobody expects war, and money is still procurable at fair rates, while raw material of all kinds is low enough to stimulate consumption. In view of all this a good fall trade is looked for. The Coal market has meanwhile been slowly reviving at well-sustained figures.—Monifeur Industriet. BELGIUM

GERMANY

figures.—Moniteur Industriel.

GERMANY

Hamberg, August 25, 1886.—Iron.—There is a better inquiry in various branches, but the prices offered are unremunerative. Fig Iron, however, still continues more offered than there is a demand for, Even the export of Spiegel is less active, so that it is not easy to sustain the price of it. Forge Pig is lower; there are no orders beyond the third quarter. The Pig-Iron attuation at Siegen is deplorable; soon more blast furnaces will have to be blown out in the locality. Siegen su unfavorably situated compared with Westphalia, and now the railroad freight changes are going to operate against it in a disastrous manner. Luxembourg Pig at the low price at which it sells is a terrible competitor besides. Foundry Pig has also gone on drooping. Even Bessener and Thomas sell less readily. Spiegel with 10 @ 12 3 Manganese is selling at 45 @ 46.50. Finished Iron is offered lower than there seems to be any cause for. Some rolling mills are busy, others not. Thin Sheets are still depressed. Wire Rods are more neglected than ever; prices obtainable will not leave the maker whole. The export trade therein has ceased almost altogether. There are but rarely adjudications for Railroad Material, and the latter is in a poor plight. But a few machine shops and foundries have sufficient occupation. In Upper Silesia the stock of Pig Iron decreased but 300 tons in all July; at this rate it would take a year and a half to absorb the load under which that region is groaning. As the export to Russia cannot be relied on, some blast fusnaces will soon have to be blown out. Finished Iron is selling three at ruinous figures. A brisker demand is now setting in, however, and prospects for the fail rade are improving. Metals—Are, dull and unchanged.—Borsenhalle.

changed.—Borsenhalle.

HOLLAND

ROTTERDAM. August 19, 1886.—Tin—has been neglected: at the same time it is offering sparnerly. For Banca, spot, 60.25 guilders is asked. Billiton, September delivery, sold at 52.75; for December, 30 @ 60.25 is asked.—Koch & Viter koom.

BILBAO, August 18, 1898.—Iron.—There has been greater animation in Iron Ores without so far leading to any improvement. We quote Campanii 6/ @ 6/3, and Rub'o 6/, after selling several cargoes at 5/9. The Ore lately shipped was in good condition. Freights are still depressed; for Cardiff and Newport, 3/8 @ 3/9, and for Glasgow, 4/3 @ 4/6. Shipments have so far this year reached 2,103,667 tons, against 2,020,599 in 1895.—Revista Minera.

AND METALLURGICAL REVIEW.

New York, Thursday, September 9, 1886.

DAVID WILLIAMS, - - - Publisher and Proprietor. - - Editor. JAMES C. BAYLES, CHAS. KIRCHHOFF, Jr., - Associate Editor. JOHN S. KING, - - - Business Manager

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#### REMOVAL.

The office of this journal is removed to 66 and 68 Duane Street.

### THE IRON AGE INDEX.

The Index to Vol. XXXVII is now ready and will be sent to subscribers on applica tion

#### The Nail Situation.

The nail trade seems to be again dropping back to a lower level. After selling as low as \$1.85 to \$1.90 in the New York market in summer the Eastern mills made a herculean effort to raise this staple article from the demoralized condition into which it had relapsed, and for a while \$2.10 to \$2.15 was quite gener ally insisted upon. The more sanguine in the trade believed that the favorable outlook in business generally would help them. They hoped that, by the time buyers had gotten over the feeling of opposition which a sudden advance always creates, the pressure of a growing demand would back them up. It cannot be denied that some of the leading men in the trade questioned the wisdom of this as in France, instead of by the public. The their position, although at the time their object was rather to force weaker competitors to the wall. The happenings of the past year, so full of incident in the nail trade, have proved that the Eastern mills are fully capable of taking care of their home demands, and are able, besides, in case of necessity to supply at least a part of the Western mar-In the past Eastern pail mills have found the works west of the Alleghenies peace with Peru and Bolivia is divided into sharp competitors for the tidewater trade. In other words; both East and West the cutting capacity is in excess of the demand. There are now in the country no less than 6355 nail machines, distributed territorially as follows :

	11984	188
Massachusetts	619	66
New York	55	1
New Jersey		26
Eastern Pennsylvania	274	36
Central Pennsylvania	697	88
Western Pennsylvania	684	56
Virginia		14
Alabama		8
Kentucky.		12
West Virginia		69
Tennessee		11
Ohio		1.28
Indiana		183
Illinois		47
Wisconsin		10
Nebraska		
Colorado		2
California		9

and that part of Ohio which is contiguous to Wheeling. It should be noted, besides, that in some sections, notably in New England, the number of the nail machines gives an exaggerated idea of the capacity. Some of the works have failed, and the majority of the others seem to be unable to produce at competing prices, and may be looked upon merely as a reserve for periods of high prices. The introduction of the steel nail has had much to do with the centralization of manufacturing, although this tendency has been checked by the labor troubles in the West and by the independent actual service: two war frigates, one moni-position into which the older steel mills tor, three corvettes, three cruisers, six ponwere carried by the heavy demand for rails. They have not, therefore, sought as in nail slabs. The result has been that some of this business has gone abroad, although in June last at a cost of \$435,000. it may be stated that at present quotations for foreign slabs at tidewater the Wheeling Steel Works can meet this competition at all for the bottoms of vessels. There are, by points west of the Allegheny Mountains. Another point which has delayed the substitution of iron by steel rails is the advance generally demanded for the latter. We believe that this difference in prices is destined to disappear entirely. The steel nail has captured all the trade which is willing to pay a larger price for a better article. But of \$26,687,916 paper money then in circula it cannot secure the balance without coming down to a parity of values. When the is a sinking fund provided, under the opera cheaper article is good enough, the better tions of which it will be gradually cancelled. cheaper article is good enough, the better grade will be taken only when it can be had given the preference. With an oversupply of nails such as we are again threatened with, the tendency will be to make differences in price disappear, and the sooner the manufacturers of steel nails realize this the bet ter. To the jobbing and retail trades this would be a source of great relief, since the carrying of a double line of assortments is

Another point which tends to increase the capacity of the nail mills is the fact that the smaller sizes are being crowded by the wire nail. The cut-nail machines are thus run on an average on larger nails, of which they can turn out a greater quantity.

an intolerable nuisance.

The labor troubles in the West have not quite ceased, and the situation has grown more complicated so far as some of the sections are concerned. The general effect of the happenings of the past few weeks has been to delay somewhat the starting of all the Western mills. In the Wheeling district the nailers went to work at a lower figure than that accepted in conference with the Amalgamated Association by the Pittsburgh mills, and the former are now running at a 15cent rate on \$1.75 base, or 16 cents on a \$2 base, as compared with 17 cents on a \$2 base for the latter. The Pittsburgh nailers refused to make the same concession declined to pay to the feeders three-fifths of the earnings of the machines demanded by them. Accordingly the Wheeling mills are running full, while the Pittsburgh mills are idle, but even under these circumstances the market is fully supplied and the tendency is downward.

Late Developments in Chili

This year is politically an eventful one in Chili, in consequence of the change of administration taking place on September 18 when the Presidency of Don Domingo Santa Maria will terminate, and for the next five years his recently-elected successor, Don Manuel Balmaceda, will occupy the Presi dential chair. Although President Santa Maria has been one of the best Chief Magis trates Chili ever had, an attempt was made last year to take his life by means of a package of explosive substances, but it fortunately failed. Important reforms are contemplated in Chili. One project provides that no Senator or Deputy shall be interested in any public contract, another is that neither the President nor any Minister shall give an office to a near relative unless it is proved that he is qualified in every respect 1884; decrease, \$11,668,121. It should be to hold it. Finally, it is proposed that the remarked that these changes are due most President of the Republic shall in future be of the time to the extent of railroad buildelected by a majority of Congress, the same ing in any one year, since all the material movement, and the outcome has justified agitation of this matter is due to the bloodshed in the late elections, when upward of 40 persons were killed and a large number wounded.

The President delivered his last message on June 1, and this document was, as usual, accompanied by the statistics for 1885. We have received these interesting official figures in full, and shall extract therefrom the chief data: Chili since the conclusion of 20 provinces, containing altogether 68 departments, and there are besides three Territories-Magallanes, Angol and Antofagasta -the whole country covering an area of 675,993 square km., and the census of No-2,439,537, including 33,000 foreigners. The principal cities are Santiago, the capital, with a population exceeding 200,000; Val-120,000; Concepcion, 19,000; 614. Talca, 19,000; Iquique, 16,430; Chillan, 16,000; Serena, 14,000; Copiapó, 10,374;

ing district, which includes West Virginia All these are Government colleges. There are, besides, supported by the State, at Santiago a mechanics' institute, an agricultural and mining school, a normal school and academy of painting, one of sculpture, a conservatory of music, a national library of Santiago a hydrographic bureau.

The army has been reduced from 7100 ank and file in 1885 to 5541 in 1886. The lowing table: navy consists of the following vessels in toons, nine torpedo-boats, also a marine artillery battalion of 600 men. The navy is eagerly as they did a year since a trade manned by 1399 sailors. The repairs to the ironclad Bianco Encalada were completed zinc sheathing was found to be in good order, and some claim that it is the best material virtue of the law of September 26, 1882, 100 battalions of, together, 53,023 rank and file, onstituting the permanent national guard.

The public indebtedness consisted on Deember 31, 1885, of a foreign debt of \$37,-733,500, and a home debt of \$49,920,237 together, \$87,653,737. With the exception tion the home debt pays interest, and there On the other hand, the Treasury held in cash at the same price. Then of course it will be at the close of 1885 \$10,800,000. Paper money, of which there were \$28,000,000 originally, is being redeemed at the rate of \$1,600,000 per annum. At this writing it is reduced to \$24,000,000. The actual income last year was \$36,000,000. The budget esti mate of outlay had been \$37,200,000, but the actual expenditure did not exceed \$34,-000,000, so that there resulted a surplus to the credit of the treasury of \$2,000,000. It should be mentioned that the expenditure embraces the money the Government spends on new railroads and other public works. The budget estimate for 1887 is \$32,000,000 expenditure and \$35,000,000 revenue.

It is urged that with such finances and so such cash in hand the paper money ought to be redeemed faster, and the resumption of specie payments hastened. Something of the kind is contemplated, but precipitate action is scouted, since it is feared that too sudden a return to hard money may involve too heavy losses in many quarters. While this important question is pending the exchange on London fluctuates continually, and this is a great annoyance to commerce. There are in operation 835 miles of railroad belonging to private companies, and 597 miles of Government lines, together 1432 miles, and in course of construction 775 miles private and Government, with five additional lines projected for which Congress granted concessions. The cost of the Government railroads in operation was \$42,107, 934; net earnings in 1884 were \$2,858,758, against \$2,553,373 the previous year. There are in operation 0502 miles of telegraph wire, the property of the Government, and 126 offices. Early in 1885 there were 411 post offices, forwarding 29,865,833 items of mail matter in 1884.

Chili's copper export was 37,000 tons fine n 1885, against 41,780 tons in 1884, 41,229 in 1883, and 43,129 in 1882.

lows:			
To North'n Europe. To the Medit'anean. To the Atlantic U. S. To the Pacific U. S	200,305 987,367	1884. Quintals. 10,390,810 186,576 1,211,714 49,073	1885. Quintals. 8,554,687 41,980 887,296 77,712

Total ..... 12,794,289 11,838,173 9,501,625 While copper production was curtailed by the low price, that of nitrate was deliberately reduced in order to check overproduction. The wheat crop of Chili this year is unusually large.

The import of merchandise in 1885 has been \$41,218,725, against \$52,886,846 in

Export (Merchandise Only).

Agric	ucts of the mines cultural products ufactures ry articles	7,824,262 202,199	1885, \$42,043,494 7,966,247 86,797 64,088
	otal		\$50,160,546 4,499,060
	decrease was, as s		
	depreciation of c		nitrate.
Ame	rican trade was as	follows:	
Caler	ndar		Domestic

The Treasury statistics at Washington still credit Peru with the nitrate we import from Chili; hence the above import figures vember 26, 1885, showing a population of appear so small. In 1885 there navigated under the Chilean flag 35 steamers, 6 ships, 86 barks, 6 brigs, 8 schooner brigs, 9 schooners and 16 sloops, of a joint tonnage of 72.

The figures we have given abundantly show that in spite of the decline in the chief San Felipe, 11,500, and Curico, 11,000. The products of Chili the latter has managed to census of 1875 showed that in a population get along a great deal better than most of 2,075,971, 1,177,503, composed of children other countries would have done under simand Indians for the most part, could neither lar circumstances. At any rate, during read nor write. Since then a great deal has and since the war on the Pacific there has been done to spread gratuitous primary in- not been a year in which Chili has not been

and Steel Works.

The "Directory" of the iron and steel works, just issued by the American Iron and Steel Association, an excellent revision of 65,094 volumes, a national museum and former editions, contains the usual summary botanical garden and an observatory and giving an estimate of capacity of the works. central meteorological office. Finally there In our last issue we printed abstracts from is the naval school at Valparaiso, and in the review of the Bulletin on the figures presented. In a more comprehensive form, however, the data are contained in the fol-

> July 25, 1884, 1886, 1882, 1884, 1886, 1882, 1884, 1886, 188 ron and steel . . . . . 7,006,000 7,600,000 7,613,000
>
> Bessemer steel ingots 2,150,000 2,490,000 4,102,000
>
> Clapp-Griffiths steel ingots. 5,000 hearth steel ingots.... Crucible steel ingots.. Ore blooms and billets 400,000 105,000 75,000 850,000 110,000 75,000 660,000 Pig and scrap blooms and billets 70,000 70,000 65,000 So far as the equipment goes, the following

summary will cover the status at the dates Equipment of Iron and Steel Works.

	84 St		7 9
Number of	-	500	E S
	1	00	1
Completed blast furnaces	686	675	578
Blast furnaces building	30	16	19
Rolling mills and steel works	400	434	460
Rolling mills building	16	4	18
Single puddling furnaces	5,018	5,965	4,886
Heating furnaces	2,598	2,782	2,568
Trains of rolls	1,434	1,555	1,470
Nail factories	66	81	88
Nail machines	4,030	5,695	6,355
Nail machines building	158	175	67
Bessemer steel works	15	20	27
Bessemer steel works building	1	1	3
Bessemer converters	36	45	58
Bessemer converters building	0.000	3	11
Clapp-Griffiths converters		1	10
Open-hearth steel works	27	35	41
Open-hearth works building	5	3	- 6
Open-hearth furnaces completed	51	88	71
Open-hearth furnaces building		5	20
Crucible steel works	85	41	40
Steel melting pots	8,490	8,594	8,391
Forges	72	70	50
Bloomaries	502	53	49

The figures of capacity are, of course merely approximate. They constitute the best estimate obtainable, in which the personal factor, the compiler, must naturally figure to a great extent. Some change ha taken place in this respect, and the capacity statements for the different periods are not directly comparable. The officers of the American Iron and Steel Association have now eliminated from the ranks of the works, many carried along from year to year, although they were practically abandoned, but not actually dismantled. The danger of doing injustice to possibly one or two has thus far kept them from striking out a hundred. We know that exception has been taken to such a course, but we feel sure that on the whole it is by far the wisest to follow. Even as they stand the figures may deceive those who do not know their significance. Thus we question whether the blast furnaces now in the country could turn out, even at boom prices, more than 7,000,000 net tons of pig iron, instead of nearly 10,000,000 tons. The latter is an aggregate of the estimates of every concern, providing it were running to full capacity all the year round. there is always a certain percentage of furnaces out of blast for repairs, and others are idle from other reasons. Then the tendency of those making returns is always to base it upon better work than can be realized on an average. The owners will generally give themselves the benefit of the doubt. How heavy the discount to be applied for these contingencies should really be it is impossi ble to guess at., No one doubts the value of the totals arrived at by the American Iron and Steel Association, but it should be un derstood by the trade, and the managers of that body distinctly state it, that their aggregates are merely nominal. We are now running our blast furnaces at full capacity for current prices-that is to say, all the furnaces in the country which are able to produce pig iron cheaply enough to meet the markets are now running-and yet we are not turning out more than at the rate of a little less than 6,000,000 net tons pe num.

The most striking increase, of course, has taken place in the steel-making capacity of the country, principally through the erection of new works since the expiration of the Bessemer patents, and to some extent also through the enlargement of the vessels of some of the older works, among them being the Troy, Cambria, Union and Scranton mills. A reduction in the number of puddling furnaces has gone hand in hand with this movement. As we noted some time since, the open-hearth works have been growing in number, a part of the business they are securing being wrested from the crucible-steel makers. Altogether the finishing capacity of the mills of the country has grown very quickly, largely through the introduction into other lines of the fast methods which have characterized American steel-rail rolling practice. If it were not for the opening up of new regions in the Northwest the question might well arise, From where are we to get the raw material !

The "Noble Order of the Knights of particularly good lot of rails.

The Productive Capacity of Our Iron whatever as to the truth of the story, but the fact that it is affirmed and believed by prominent members of the order shows that there are elements at work in it which threaten its disruption at no distant day. The great trouble with the order is that it has a membership too large to be handled, and is composed of elements too incongruous to be mingled without developing violent antagonisms. M. Goudin, of Guise, the founder of the most interesting socialistic experiment now in progress, and who has attained at one step, so far as its attainment is possible at all, the ultimate object of the Knights of Labor-the partnership of labor with capital-is said to have expressed regret that his experiment was made with such unpromising material. The same may be said by those who aim to lead the great labor novement by safe paths to practicable ends. Out of such material as represents a very large part of the recent growth of the order nothing can come which, for its attainment. demands self-restraint and a recognition of the social law which defines the end of one man's rights as the point where another's begin. The objects of the order, as set forth in its constitution and laws, are in the main commendable, and almost any one might safely subscribe to them; but these are quite lost sight of in dealing with subjects of present interest, and for this reason the order is not likely to accomplish any of its original and ostensible purposes. The trouble is the same here as at Guise. Great movements cannot be carried out with poor material. Even great leaders are powerless in the presence of a following they cannot control, and an order in which so many contrary forces are operating as seems to be the case in the Knights of Labor cannot be led anywhere by anybody. Sooner or later it will succumb to the temptation of politics, and then it will inevitably go to pieces—unless, in-deed, sooner wrecked by the internal jealousies and dissensions which are now coming to the front so prominently in the struggle for control in the coming convention at Richmond.

#### English Claims to Higher Quality in Rails.

Some of the evidence before the British Commission on Trade Depression is interesting reading, although, of course, it relates to the condition of affairs more than six months We note particularly the testimony of Mr. J. T. Smith, of the Barrow Works, on the West Coast of Great Britain. That gentleman, referring to the fact that we occasionally import a few cargoes of the very choicest Cumberland ore for special purposes, assented to the proposition that we do it on account of the inferiority of our own ore. The following were the answers to the questions put :

Q. Then it is owing to the inferiority of their rails and to your having a better article that the Americans will pay you 6 guineas a ton more for rails manufactured by you than for rails manu-factured in their own country? A. £2. 10/a ton. Q. And £3. 16/ for duty? A. No, we pay the extra price; they pay us £2.10/ and we pay the Q. Then there is £2. 10/ difference in the value

of a steel rail made here over the American rail:
A. It was so considered in that particular instance. We get our £2. 10/ a ton over the American price for rails, and we may presume that th

can price for rais, and we may presume that the purchaser considers that he gets an equivalent for the extra money that he pays.

Q. Would you explain a little further your statement to Mr. Pearce about your paying duties on steel rails which went to America? A. When we deliver steel rails at New York we cannot land those rails in New York without paying a duty of \$17 a ton. \$17 a ton.

Q. You do not mean to say that the exporters

Q. You do not mean to say the duty? A. We do,
Q. You mean that the duty is paid not by the importing people, but by the exporting people?
A. The price is fixed free to New York, and you not the rails into railway trucks for inland ransport until the duty is paid.

Mr. Jacksor: That is one of the conditions of the bargain? A. That is it.

Earl of Dunraven: Do you mean that you sell the article cheaper per ton to the American importer to the extent of the duty? A. Yes.

Q. Then the exporter has to pay the duty? A. Yes; if no duty had to be levied it would make a

difference of \$17 less per ton. This throws considerable light on the

sale of 10,000 tons of rails to the Chicago, Burlington and Quincy Railroad, which was asserted by some in this country, and was generally stated in England, to be the result of a conviction on the part of the railroad that they could only get superior quality by going abroad. It now appears that the Barrow Hematite Company in reality undersold the American mills by £1. 6/, or about \$5 30, at tidewater. As rails in England declined more than that since, it seems evident that the sellers were pretty sure that the European rail combination was to go to pieces. We asserted at the time that there must be some other motive for placing such an order abroad. It was not a question of quality. This is proved by the fact, as we stated in our market report last week, that the same railroad has placed an order for 20,000 tons. 1887 delivery, with a Western mill, issuing specifications which were unusually stringent, and called, besides, for the use of 20 per cent. of charcoal iron in the mixture. We understand that the latter clause grows out of the fact that at some time the Chicago. Burlington and Quincy Railroad had a Labor" does not appear to very good ad- its history its managers found that some vantage just now, owing to the exposure of charcoal iron had been used in making it. California 2 2 struction. A liberal education may be obtained in the National University at Santin Central Pennsylvania and in the Wheeliago and 19 lyceums in as many provinces,

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#### Condition of the Blast Furnaces of the United States, September 1, 1886.

The most striking feature of the returns which reflect the status of the blast furnaces of the United States at the beginning of the current month is that there have been no additions of consequence to the list of active furnaces. Reviewing the history of the past few months, we may state that all the fluctuations in the status of the anthracite furnaces are merely those due to the blowing out temporarily for repairs. In over 100 furnaces it may happen that at a given date a few more are blowing, and only a week later there may be a considerable change, and yet it does not follow that there has been a resumption of work among idle furnaces or a blowing out of active ones to wait for better times. This month, it will be noted, there is quite a heavy decline in the number and in the capacity of the plants running with anthracite as a principal fuel, and yet, so far as we can learn from a study of the details, this does not in reality represent a restriction of the output which is likely to last. The furnaces which have gone out will blow in again, and some which have been repairing will resume operations during the current month. Still August has borne out the prediction made a month since concerning the probability of a light month, and we are justified in stating that September will be even smaller still. In ordinary times, with a fair stock acting as a fly wheel, such a state of affairs would not be likely to have any appreciable effect upon values, but when consumption and output are so closely balanced as they have been for months, and when the quantities available from other sections are below the average of the past six months, even a temporary reduction of the supply is likely to have its influence. It is to guard against exaggerated ideas of that reduction that we insist upon the statement that everything points to a probable return to the output of past months. It happens that a number of furnaces have blown out for repairs, while the gap made has not been at once filled by others which were getting ready to resume.

Anthracite Furnaces in Blast September 1.

Location of fur- naces.	Total number of stacks.	Number reported in blast.	Capac, per week.	Number reported out of blast	Capac, per week.
New York New Jersey Spiegel	30 15 8	14 7 8	3,801 2,859 225	16 8 0	8,490 1,870 0
Pennsylvania : Lehigh Valley	47	85	10,896	12	8,056
Spiegel. Schuylkill Valley	45 90	19	5,658 2,570	26 10	6,480 1,815
U. Susquehan. Val. L. Susquehan. Val. Maryland		22	7,868	15	3,450 440
Total Sept. 1	3002	113	88,907	90	20,611
Total August 1 Total July 1	212 211	190 117	36,841 36,762	92 94	20,549 20,809 18,949
Total June 1	207 208	121 119	38,239 36,924	86	19,565

No special changes have taken place in New York. We have, however, dropped from the list a number of the furnaces not likely to resume. In New Jersey the Chester Furnace will blow in this month, and then the output of the State will return to its nominal magnitude. In the Lehigh Valley the Macungie and one of the Saucon furnaces have blown out for repairs. In the Schuylkill Valley the Leesport, the Mount Laurel and Robesonia furnaces have gone out, while the Lucinda will soon blow in, to make spiegeleisen. In the Upper Susquehanna Valley one of the Lackawanna furnaces has gone out for repairs. The Danville furnaces have been purchased by the North Branch Steel Company, but as yet no plans have been settled concerning them. In the Lower Susquehanna Valley one of the Chestnut Hill furnaces has gone out of blast, and the same is true of one of the Chickies furnaces, which is to be replaced by a new 65 x 12 stack. The Katharine Furnace had just gone into blast,

The following is a summary of the status of the bituminous and coke furnaces of the United States on the 1st of August, from which it will be seen that there is a slight increase in the make :

Bituminous or Coke Furnaces in Blast, Sep-

Location of furnaces.	Total number	Number reported	Capacity per	Number reported	Capacity per
	of stacks.	in blast,	week.	out of blast.	week.
Pennaylvania: Pittaburgh. Spiegel. Aliegheny Valley. Shenango Valley. Youghi Valley. Juniata & Conem. Spiegel. Maryland. Virginia. West Virginia	16	14	18,975	2	1,200
	1	1	450	0	0
	22	13	496	1	115
	25	8	6,901	10	4.370
	6	10	1,078	3	855
	20	1	4,505	10	8,012
	1	1	250	0	0
	2	1	190	1	90
	10	8	2,989	2	850
	6	4	1,870	2	780
Ohio: Mahoning Valley Hocking Valley Hocking Valley Hanging Rock Miscellaneous Kentucky Tennessee Georgia Alabarna Indiana Ulinois Michigan Misaouri Wisconsin Odorado	15 15 18 19 3 10 2 10 2 16 2 16 3	11 6 10 14 8 8 7 1 11 0 4 1	6,025 1,078 2,023 6,496 886 2,970 1,015 8,315 125 9,973 0 1,440 675 600	4 9 8 5 9 8 1 5 9 4 9	2,380 1,350 500 2,310 0 625 0 860 210 1,690 580 1,625 350 0

As compared with former months we have :

and one of the Schoenberger furnaces are running. A report that the Isabella has been showing signs of chilling and will therefore soon go out is contradicted. In & Co.'s Etna furnaces has been blown out go in in a few days. Henderson Furnace, purchased by the recently organized Hender-Shenango Valley furnaces have not been have gone out for repairs.

In Virginia the Lynchburg furnace reumed operations on the 12th of August, while in West Virginia the Irondale, remodeled to 60 x 131/2, was lighted again on the 7th, making about 30 tons a day. In the Mahoning Valley the Girard Furnace is place in the Hocking Valley, Ohio. Among the furnaces classed under "miscellaneous" in Ohio the Bellaire will go in in a few days, and the Steubenville Furnace, which was idle since May last, blew in on the 3d inst., so that the output of Ohio will be heavier in Calumet Furnace will be in in a few weeks, public. and in Missouri the second of the furnace of the Western Steel Company has been blowing during the last week in August.

We summarize the status of the charcoa furnaces as follows:

Charcoal Furnaces of the United States, September 1, 1886.

Location of fur naces.	Total number of furnaces.	Number reported in blast.	Capacity per week.	Number reported out of blast.	Capacity per week.
New England	14	7	710	7	214
New York	10	4	490	6	580
Pennsylvania	27	9	48.1	18	480
Maryland	13	2	196	11	640
Virginia	24	4	160	20	1,040
North Carolina	2	1	120	1	190
West Virginia	- 8	0	0	8	165
Ohio	18	7 2	400	11	665
Kentucky	8	2	305	1	110
Tennessee	- 8	8	510	5	170
Georgia	2	0	0	2	145
Alabama	11	8	1,975	8	375
Michigan	25	15	4,144	10	2,000
Wisconsin ,	11	- 8	654	81	725
Minnesota	1	0	0	1	210
Missouri	4	- 3	475	8	452
Texas	2	1 0	230	1 1	110
California	1		0	111	945
Washington Ter'y	1	0	0	1 1	175
Oregon	1	0	0	1	100
Total, Sept. 1	181	68	10,797	118	8,771

Total, Sept. 1.		1 60 11071	01 1110 1 0,111
As compared	with	former :	months this is:
		Furnac in blas	
September 1		68	10,797
August 1		63	9,785
July 1			9,885
June 1			9,867
Ma=1			8,211

There has been, therefore, a slight increase in the number and capacity of charcoal furnaces blowing. We estimate the output of Michigan, based upon nearly complete returns, at 17,774 gross tons for the month of August.

We estimate the output of these districts

As follows for the first eight Production of Anthracite 1 Months, Gross To	ig Iron, Eight
Pennsylvania— Lehigh Valley Schuylkill Valley. Upper Susquehanna Valley Lower Susquehanna Valley. New York. New Jersey	
The estimate of the actu	

in our next issue.

While a good deal of fun has been poked at our vessels of war and every new venture in the Government shipbuilding line has been bitterly criticised, it is somewhat consolatory to turn to the results of investiga tions in foreign Government departments. In a general way European powers seem to enjoy, or have enjoyed, according to popular opinion, comparative immunity from the dishonest practices and lack of thoroughness which characterize Government work in so many branches in this country. This illusion, however, will speedily vanish when the facts in the cases are known. Taking the work of the Navy Department as o special interest, attention may be given very appropriately to British Admiralty practices which, for obvious reasons, we might be expected to regard as examples worth imitating. All available reports, however, pre sent them in a most unfavorable light, and they will apparently be valuable only through the experience to be gained from them. and not because of any results of immediate benefit. Light weight for a given amount of power and great compactness are prominent features of the British man-of-war engine of the present time, and in securing

all outward appearances give every satisfaction during the customary six hours' full speed trial, there is no guarantee whatever In the Pittsburgh district all but the Ella that they are capable of exerting this maximum effect for any great length of time ity. Some writers have denied that increased without trouble. This has already been production of gold has this result, on the shown to be true to a certain extent by practical test, and requires little further conthe Shenango Valley one of P. L. Kimberly firmation, though prolonged trials giving every opportunity for fairly judging the masince the 1st, but their new furnace will chinery from this particular point of view would be of the utmost interest. At the same time, however, it is an admitted fact that son Furnace Company, of Sharpsville, has the engines of the vessels are taxed to blown in, and the Keel Ridge Furnace resumed in August. Generally speaking the trials to which they are now subjected, and are able to satisfy the imposed conditions producing quite as much in August as in only by the most careful handling. In other previous months. In the Youghiogheny words, then, the ships are fitted with engines Valley the same stacks were running, to which can be worked up to maximum power which is to be added the Oliphant, which, it for only a few hours, and are thus not by is expected, will resume on the 10th of any means what they ought to be or what October. In the Juniata and Conemaugh they are generally believed to be. The valleys the Emma and Powelton furnaces machinery, as one of the English papers complains, is called upon to achieve impo bilities, and the British authorities either do not know or do not care that they are impossibilities. These facts, and such they are beyond a doubt, deserve the closest attention and ought to be of some service in suggesting possible and desirable modifications out. No changes of consequence have taken in the designs of engines which should be capable of meeting every demand for absolute reliability and continuous thorough working at the high speeds claimed for them. That success in this respect has not been realized in the British navy is well attested by the several break-downs of which we do September than it was in August. The know, and by many others which have unsame furnaces are running in Kentucky and doubtedly occurred, but of which little, if in the Southern district. In Illinois the any, knowledge is allowed to reach the

The great damage to the city of Charleston by the recent surprising earthquakes is peculiarly to be regretted, for the reason that the damage can never be made good nor the losses replaced. Much that is destroyed or irreparably injured belongs to the past, and no commercial or social necessity exists for its replacement. Old mansions, old churches and public buildings of a period antedating the great changes of the war are the ones most damaged, and they are not likely to be rebuilt. This fact may well occasion regrets, but it is also a source of some satisfaction, since a very large part of the estimated total loss is represented by the damage to buildings which will not need to be replaced. Meanwhile, however, it must be remembered that there is an immense amount of suffering resulting from the great calamity, that a multitude of people are homeless, and that the prosperity of the city has received a staggering blow. As soon as the requirements of the community are fully understood we have no doubt the response from all parts of the country will be immediate and hearty. The people of Charleston are showing a most commendable spirit, and are asking for nothing but the temporary accommodation of tents to shelter the homeless. It is not likely, however, that this spirit of self-helpfulness will be misunderstood and lead to the withholding of necessary help. It is rather likely to stimulate wisely-directed charity and to commend the hearty sympathies of those who have resented evidences of absolute dependence upon outside aid. The frequent recurrence of the phenomena so much dreaded. showing that mysterious and immeasurable disturbing forces are still at work, is well calculated to utterly dishearten the afflicted community and discourage all efforts to restore the city, but the people of Charleston do not seem to have lost heart, and in their struggle with adversity they are entitled to all the generous help they need.

#### The Causes of Commercial Depression.

A valued correspondent sends us the following communication, which will doubtless be read with interest: To the Editor of The Iron Age.—DEAR

SIR: The French economist, Emile de Lave leye, has expressed his views as to the causes of the present crisis in a recent num-ber of the Contemporary Review. The dis-tinguished reputation of M. de Laveleye as a publicist and statistician gives peculiar interest to his opinions at the present time, and besides this the arguments he presents, supported by convincing statistics, seem unanswerable as an explanation of the eco nomic situation. The principal cause of the prevailing distress, he asserts, is the excessive fall in prices, and he then proceeds to inquire what has produced the extraordinary and unprecedented depression of prices. Of ourse several agencies have contributed to this result-overproduction, the entire colof special industries-but these are merely local and do not explain the condition of trade in every country of the world. The true cause is found in the ever growing scarcity of gold and the monetary contraction thence resulting. In 1869 it was asserted by the economist that the annual supply of gold at that time—\$150,000,000—was barely sufficient to meet the requirements of the expanding commerce of the world. Since that time commerce has gone on increasing from year to year, while the annual supply of gold from the mines of Australia, California and elsewhere has fallen to less than \$90,000,000.

ship trials and of the behavior of the vessels been proposed, the effect upon commerce all under ordinary circumstances will make.

Though the engines of the vessels may to occurrence at the present crisis would be the discovery of large deposits of gold. Such discoveries in the past have always had the most beneficial effects on trade, being foldiscovery of large deposits of gold. lowed by increased prices and greater activground that while production rose, as it did between 1850 and 1870, 200 per cent., prices only rose about 15 or 20 per cent. But this is explained by the fact that such an impetus commerce in general that ample employment was found for the gold. With the same volcountries where silver is proscribed currency is rapidly going to a paper basis. In the United States the tendency is toward silver.

The maintenance of the present unequal business men generally. Nominally we have a double standard of value, but the difference between the actual value of the the lathe. silver dollar and the value of the gold dollar must result in withdrawing the latter from circulation and placing the finances of the country exclusively on a silver basis. This would without doubt be advantageous to the European countries, as it would increase the supply of gold for circulation there by lessening, if not destroying, the demand in this country. But the effect of such a conlessening, it not destroying, the demand in this country. But the effect of such a con-dition of affairs would be extremely in-jurious to us, as the experience of other countries has shown that a "low standard of value places the nation that adopts it at high-power steel guns; secondary batteries, great disadvantage in its trade with other which include the Hotchkiss and Gatling nations, and at the same time and consequently depresses its own industries." There

hold of any enterprise which involves the outlay of capital, and wages are bound to be affected by this uncertainty. The supply of gold being too limited to supply all the needs of circulation, it is, of cousse, necessary to employ silver in the facilitation of exchanges. But the silver dollar should be made to approximate the value of the other standard—the gold dollar. Where prices are reckoned by the dollar, and the gold dollar and the silver dollar are made by arrivals we equal in value for the purpose bitrary law equal in value for the purpose of exchange, the effect on purely domestic business is not, perhaps, so important as long as the silver dollar is freely received. But when it comes to the settlement of international balances the owner of the silver is placed at a great disadvantage, as the foreign creditor only recognizes the bullion value and must be paid in gold. One plan has been proposed to steady the value of silver which seems to have considerable merit. It is proposed to issue certificates against bullion deposits of silver with the Treasury, the holder of the certificate heim. against bullion deposits of silver with the Treasury, the holder of the certificate being be so great as to cause any appreciable loss either to the Government or to the holder of

the certificate.

Hugh McCulloch, ex-Secretary of the Treasury, in a letter written to the bankers' convention recently held at Boston, advocates as essential to the return of financial prosperity the suspension of the silver coinage for an indefinite period, the discontinuance of the issue of notes under \$5 and a recoinage of a part of the dollars now in the Treasury into fractional pieces. He cates as essential to the return of financial and a recoinage of a part of the dollars now in the Treasury into fractional pieces. He is inclined to think that the present depression is due to overproduction, "because the supply is greater than the demand, because the revolution in all branches of including the revolution in all t dustry caused by machinery is now felt in full force."

[Comments by the Editor.]

Our correspondent discusses in a rather comprehensive way a very complicated question. Gold being the only true and ac-cepted standard of values in the leading commercial countries, its greater or less abundance at any given time must, of course, affect values. So also a gold drain which causes a large amount of the metal to be forever withdrawn from circulation-as in British India, for example, where £4. 712,899 have been absorbed annually during the past five years-must affect prices to an appreciable extent. But that the decreased supply of gold is the chief cause of the decline in values—a theory first propounded by Mr. Goshen, in London—we do not believe. We attribute it rather to the immensely increased and cheapened production of rec years. If to the scarcity of gold these phenomena are attributable, real estate values, both urban and rural, would have declined in value proportionate to the decline in commodities; yet the value of land has maintained wherever it has value. T cent advance in wool and the still more recent advance in coffee show that the moment consumption reaches the proportions of the supply in any stable article of utility is concerned, we do not think it can be dis-Bankers' Convention.

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The adoption by Germany of the gold

standard in 1872 absorbed from general circulation a large quantity of gold, and should

amination of the records of British war
the United States follow its example, as has

#### WASHINGTON NEWS.

(From Our Regular Correspondent.) Washington, D. C., September 7, 1886.

The circular of transfer of the Washington Navy Yard from the old arrangement of di-vided bureau control, which has lasted for 85 years, to the uses of the Bureau of Ordnance inaugurates not only an enlarge I sphere of activity, but will make Washington the headquarters for the fabrication of naval ordnance. The transfer will take place on was given to railroads and international October I. In anticipation of the event the commerce in general that ample employment ordnance officers of the navy have been perfecting their plans and examining appliume of business as was previously trans-acted there would have been an extraordinary boom in prices. Lord Beaconsfield said in 1879 that gold was steadily appreciating in value; as it continued to appreciate the of naval supplies, and has successfully fabrilower would prices become. The argument is that as the increase in the supply of gold raises prices, so a decrease in the supply adopted for the use of the new ships of the with an equal or larger amount of business with an equal or larger amount of business lowers prices. It is not at all difficult to understand why this should be so. The supply of gold for money being insufficient, in countries where silver is proscribed currency is rapidly going to a paper basis. In the United States the tendency is toward silver. guns of the largest caliber may be ha From the 12-inch gun it is proposed to adrelation between silver and gold is undoubtedly the cause of much of the uncertain feeling on the part of investors and machinery the completion of a gun without machinery the completion of a gun without rehandling after the band jacket and rings are placed on the tube and it is placed on This will include rifling and external finish.

The ordnance officers at the Navy Department are feeling quite encouraged over this opportunity to display their ingenuity and skill in the design and manufacture of naval ordnance, which they claim in present small and future large calibers will lead the best ordnance of the European nations. The appropriations for naval ordnance in general in 1885 were but \$125,000, but for the armaments of the four steel cruisers \$900,000 were appropriated. This liberal sum was for nations, and at the same an idea that cheap money stimulates commerce, but that proposition has been disproved over and over sgain.

There is nothing more damaging than the fluctuations of value which arise from the present system. Men are afraid to take hold of any enterprise which involves the outlay of capital, and wages are bound to be outlay of capital, and wages are bound to be outlay of capital, and wages are bound to be outlay of capital, and wages are bound to be outlay of capital, and wages are bound to be outlay of capital, and wages are bound to be outlay of capital, and wages are bound to be outlay of capital, and wages are bound to be outlay of capital, and wages are bound to be outlay of capital, and wages are bound to be outlay of capital, and wages are bound to be outlay of capital, and wages are bound to be outlay of capital, and wages are bound to be outlay of capital, and wages are bound to be outlay of capital, and wages are bound to be outlay of capital, and wages are bound to be outlay of capital arms. This in itself will keep the officers at work until they are prepared to go on with the armaments of the additional vessels ordered. Hitherto the 6-inch tubes have alone been of domestic manufacture, the 8-inch being improved small arms.

This in itself will keep the officers at work until they are prepared to go on with the armaments of the additional vessels ordered. Hitherto the 6-inch tubes have alone been of domestic manufacture, the 8-inch being improved small arms. guns; steel gun carriages, with steam appli proper encouragement there will be no diffi-culty in turning out tubes of home manufacture of any required size. It is claimed for the new ordnance authorized that the guns will be of American design, possessing all the best features of advanced foreign ordnance, with such improvements as the ingenuity and skill of our own officers sug-

The designs of 12 and 16 inch guns have been completed, and only await the necessary forgings to begin work. The appropriation for the work will be available as soon as the Secretary of the Treasury returns.

THE TESTS OF NEW ORDNANCE.

In speaking of the tests of the 8-inch naval guns the officers in charge say that the results were most gratifying. The naval ordnance proving ground at Annapolis has every facility for work. The guns showed 1966 feet initial velocity. This gun will throw a projectile weighing 250 pounds 8 Treasury, the holder of the certificate being entitled to the gold value of the bullion either when he presents the certificate for redemption or the market value at the time when the certificate was issued. It is not will place any seacoast city at the mercy of the certificate was insued. It is not will place any seacoast city at the mercy of the certificate was insued. a fleet unless adequate means of resistance afloat are presented. It is stated that a fleet afloat are presented. It is stated that a fleet off Sandy Hook with ordnance already practicable could land 800-pound shells any-where within a radius of 16 miles. The only effectual resistance now known or suggested is steel towers and floating batteries off the mate even the yearly increasing demand for the arts of peace.

In addition to high-power heavy guns. the ordnance officers of the navy have de signed a high-power small arm for picking off gunners behind the steel shields which are necessary as a protection against the rain of shot from the secondary batteries. The small arm will within close-quarter range throw a small steel bolt which will penetrate 2 inches of steel. The experiwith these small arms, which are ments breech-loading, have been entirely satisfactory.

The American heavy guns which have been adopted for naval use are a modification of the Vavasseur, which is claimed to be the only true design of a steel gun. The naval gun is fitted with a slotted screw breech, while the Krupp gun has a sliding wedge breech. The American is considered a great improvement in celerity of manipulation and safety over the German gun.

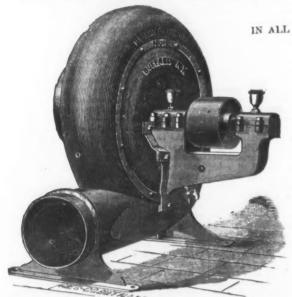
MACHINERY FOR HANDLING GUNS.

In addition to the steam training engines by means of which heavy ordnance will be handled in action, experiments are in progress looking to the use of electric moof the supply in any stable article of the supply in any stable article of the supply in the same as it has always tors which will supplement steam in case to be been—a legitimate advance is established accident or damage. The guns can also be managed by hand in event of stoppage of managed by hand in event of stoppage of working them. Under So far as our own monetary system all other means of working them. Under cerned, we do not think it can be distinct the last act of Congress for new vessels cussed more intelligently than it was by Mr. \$1,000,000 were appropriated for their arma-Hugh McCullough in the recent National ments. It was observed by a naval authorments. It was observed by a naval author-ity that it took more time to construct the armament than to build the vessel. work on the guns of the additional ships will therefore begin immediately after the transfer of the Washington Navy-Yard to the Ordnance Bureau.

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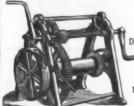
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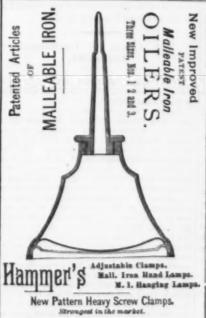
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2 in 2% in 3 in...

H. M. SCIPLE,

107 and 100 N. Third St., Philadelphia, Pa

TO MANUFACTURERS

OF

## BOILER APPLIANCES.

We desire to have a new article manufacture on a royalty. It is an Automatic Feed-Water Regulator for boilers, operated directly by steam. It has no float, and is reliable, efficient and cheap It is small in size and readily put up. We would also dispose of a part interest in the patent if preferred. Call or address COLLYER & BAIRD,

243 Broadway, New York.

#### Wanted.

A salesman to travel in the North and Northwest. One-having a large acquaintance with the Hardware Joboing Trade only need answer. Also, wanted a salesman to sell a line of Hardware in Pennsylvania. Best references required. P. O. Rox 9355,

New York.

#### WANTED,

# Iron and Steel Scrap.

We buy all kinds of Iron and Steel Scrap. Write to us when you have any to sell. SITES, WHEELER & CO., 222 and 224 So. Third Street, Philadelphia, Pa.

PEAD THIS!—Situation wanted by a Salesman of 34, with long experience on the road and in the house. Has "Pennaylvania" agency for a splend diline of goods manufactured by a first-class concern, with established and regular trade. Monthly benefits from same could be applied on salary if desired, Sales can be assily increased in connection with a line of Hardware, Sine or Resilroad Supplies. Does not require much traveling, and no need of carrying stock. First-class references. Dealers will do well to investigate. For particulars, address.

"M. & R. R.,"
Office of The Iron Age, 66 and 58 Duane Street, N. Y.

#### For Sale or to Lease.

A party to buy patents, or build on royalty, som new Agricultural Tools (seed drills and cultivators made of from mostly. Tools are novelites and wii pay. Address E. C. ELLWOOD, Greens Farms, Conn.

ITUATION WANTED—By a young man who has had nine years' experience in the Wholesale and ketali Hardware business. Good references, willing to work on small salary if steady employment is offered. Address "L. R." Office of The Iron Age, 4th and Main Sts., Cincinnati, O.

WANTED.—An old and experienced traveler for Hardware and Brass Goods of all kinds direct for manufacturers desires a recition to direct for manufacturers desires a position to travel, having an extended acquaintance from coast to coast to Address, "EXPERIENCE," office of The Iron Age, 66 and 68 Duane St., New York.

#### WANTED,

Position as Superintendent or Melter of Open Hearth Steel Plant. Address "H.," Box 30, Office of The Iron Age, 66 and 68 Duane St., N. Y. A VALUABLE PATENT ON RAZORS FOR sale or to let on royalty.

Address " C. F. P." Office of The Iron Age, 220 South 4th St., Philadelphia.

#### Special Notices.

Machinery, New and Second Hand.

One 17 in. x 6 ft. Fornalth Engine Lathe, second hand.

One 18 in. x 6 ft. Fornalth Engine Lathe, second hand.
One 18 in. x 2 ft.
One 16 in. x 6 ft. Fifield Engine Lathe, second hand.
One 20 in. x 8 ft.
One 21 in. x 8 ft.
One 21 in. x 8 ft.
One 23 in. x 8 ft.
One 23 in. x 8 ft.
One 24 in. x 8 ft.
One 25 in. x 10 ft.
One 25 in. x 10 ft.
One 25 in. x 10 ft.
One 18 in. x 10 ft.
One 19 in. x 10 ft.
One 19 in. x 10 ft.
One 25 in. x 10 ft. One 19 in. x 10 ft.

One 20 in. x 12 ft.

One 26 in. x 12 ft.

One 26 in. x 12 ft.

One 26 in. x 18 ft.

One 26 in. x 18 ft.

One 24 in. x 18 ft.

One 24 in. x 14 ft.

In the first in the second hand

PLANERS.

One 30 in. x 30 in x 5 ft. Whitcomb Planer, 3d hand.
One 30 in. x 30 in. x 10 ft.
One 30 in. x 30 in. x 5 ft. Pond Planer, second hand.
One 30 in. x 30 in. x 10 ft. Enterprise Planer,
One 33 in. x 36 in. x 10 ft. Enterprise Planer,
One 34 x 34 x 6 in. "Wood & Light" Planer, 3d hand.
One 34 in. x 34 in. x 6 ft. Lodge, Davis & Co. Planer, new
One Belden Crank Planer, new. Whitcomb Planer, 2d hand. DRILLS

DRILLS.

One 24 in. Bickford Drill, second-hand.
One 24-tech Bickford Drill, new.
One 20 in. L., D. & Co. Drill (Lever), second hand.
One 20 in. L., D. & Co. Drill, (Lever and Wheel) new.
One 28 in. Bickford B. G. S. F. Drill, new.
One 28 m.

MISCELLANEOUS. Two 20 in. L., D. & Co. Shapers, new. One 26 in.

One 32 in.

Two 34 in. x 4½ in. Grindstones and Frames, new.
One 14 in. Steptoe Shaper, second hand.
Two Grant & Bogort Universal Millers, new.
One seamall Valve Miller, new.
One Sellers' Car-Wheel Borer, second hand.
One Water Emery-Wheel Grinder, new.
One Bolt Cutter and Dies, to cut up to 1½ in., new.

LODGE, DAVIS & CO. Manufacturers and Dealers, CINCINNATI, O. Write for prices; it will pay you.

# FACTORY FOR SALE, PLANS, SPECIFICATIONS and

ST. LOUIS, MO.

The undersigned offers for sale at 60 per cent of actual value the factory and grounds of the Stumpe & Niehaus Furniture Co., corner of Main and Madison

& Niehaus Furniture Co., corner of Main and Madison streets.

The lot has 80 feet front on Main street and runs back 447 feet on Madison street to the Wabash R. R. tracks, near a switch for receiving and shipping in connection with all railroads centering in the city.

The building occupies 80 feet on Main street, extending back 192 feet on Madison street; has three stories and a basement, containing over 35,000 superficial feet of floor space, with walls adapted to carry two additional stories, which would increase the floor space to 51,000 feet; is furnished with a full complement of furniture manufacturers' modern machinery and appliances, including shaving blower, steam heating and drying apparatus, elevators, engines, boilers, &c., beiting and everything else complete and in good order, ready to start up at once.

This property is well adapted for any manufacturing purpose requiring good railroad facilities and large factory and yard room.

The location is one of the most desirable in the city.

intge factory and yard room.

The location is one of the most desirable in the city, being in the centre of a good manufacturing district and convenient to the business portion of the city.

Terms of payment liberal. Call or address

H. KLAGES,

### 2500 North Market St., - ST. LOUIS, MO.

SECOND HAND CHEAP.

CHEAP.

1 15 ft. 42 in. Fitchburgh Lathe.
1 15 ft. 42 in. Fitchburgh Lathe.
1 16 ft. 24 in. Engine Lathe.
One 6 ft. 17 in. Engine Lathe.
Two 5 ft. 10 in. Engine Lathe.
One Foot-Power Screw-Cutting Lathe.
One Profiling or Edging Machine.
1 Milling Machine, Lincoln Pattern.
One -spindle Pratt & Whitney Drill.
One 4-Spindle Garvin Drill.
One 4-Spindle Garvin Drill.
One small Drop Press, with Power Lift.
Send for List of Second hand Tools.

#### New York Machinery Depot, Bridge Store No. 16, on Frankfort St.,

NEW YORK

#### For Sale.

A complete set of Horizontal Blowing Machinery suitable for blowing a medium-sized Blast-Furnace Engine, 32 in. x 45 in., strongly geared, 3/5 to 1; blast cylinders, 60 in. x 66 in. Built by R. S. Newbold & Son. All in first-class order. Can be examined on foundations. Apply to SCHALL, STEACY & DENNY, York, Pa.

#### RARE BARGAIN!

FOUNDRY AND MACHINE WORKS FOR SALE AT STAUNTON, VA.

Owing to the death of the senior member of the re-cent firm, this establishment is to be sold. The works occupy valuable real estate, and could be removed to cheaper locality. There is a speculation in the real estate. Machinery sold separate if desired. An in-spection of the place solicited. Address. FRANK C. BEALL, EXECUTOR, Frostburg, Md.

HARDWARE BUSINESS.—An old-established house of so years' standing, in one of largest cities in western Pennsylvania, and in the midst of the natural-gas region, will be sold at a sacrifice; it is a very desirable purchase. Stock will invoice \$6000 to \$7000. Address "HARDWARE BUSINESS,"

Office of The Iron Age, 66 and 68 Duane St., N. Y.

FOR SALE.

#### To Mill Owners.

An energetic and experienced man wishes an engagement as SuperIntendent or Manager of a Rolling ill. Has been connected for upward of 20 years with both Stéel and Iron Mills whose manufactures include Rails, Bar, Hoop, Rod, Wire Rod, Plate, Sheet and Nails. Can erect Mills design Rolls and Intelligently oversee all the details of the various branches included in the works. Sarisfactory references given. Address "ROLLING MILL," Box 7.
Office of The Iron Age, 66 and 68 Duane Street, N. Y.

IN ORDERING CRUCIBLES always mention the maker's name. Dixon's are the standard. All the U. S. Government schedules call for 'Dixon's or their equal."

JOS. DIXON CRUCIBLE CO.,

JERSEY CITY, N. J.

#### Wanted.

a good Hoop and Guide Will Roller for an 3-inch Il. Address "SO, BOSTON,"
Office The Iron Age, 66 and 66 Duane Street, N. Y.

### Special Notices.

GREAT BARGAINS

## MACHINERY

30 in. x 72 in. Corliss Condensing Engine.
14 in. x 30 in. Corliss Engine. New.
15 in. x 30 in.
10 in. x 92 in.
12 in. x 18 in. Automatic Cut-Off Engine. 12 in. x 18 in. Automatic Cut-Off Engine.
10 in. x 18 in. Slide Valve Engine.
10 in. x 16 in.
10 in. x 16 in.
11 in. New.
12 in. X 12 in. Portable Engine and Boiler.
13 in. x 12 in. Portable Engine and Boiler.
15 in. x 10 in. Horizontal Engine.
10 H.-P. Baxter Engines.
14 H.-P. Baxter Engines.
15 x 12 Double-Drum Hoisting Engine.
16 H.-P. Babcock & Wilcox Boiler.
17 x 12 Double-Drum Hoisting Engine.
18 x 12 in. Postable Engine.
19 x 12 in. Postable Engine.
19 x 12 in. Postable Engine.
10 H.-P. Babcock & Wilcox Boiler.
10 x 12 in. Postable Engine.
10 x 12 in. Postable Engine.
11 x 12 in. Postable Engine.
12 x 13 x 13 in. Postable Engine.
13 x 13 in. Postable Engine.
14 x 15 in. X 15 in. Postable Engine.
15 x 16 Horisontal Tubular Boiler.
16 x 16 in. X 16 in.

n. x 10 ft. Locomotive Boiler.

15 x 16 Horisontal Tubular Boiler.
13 x 13
14 in, x 10 ft. Locomotive Boiler.
14 8 in, x 14 ft.
14 8 in, x 14 ft.
14 8 in, x 17 ft. Upright Boiler.
14 in, x 7 ft. Upright Boiler.
14 ini, x 2 ft. Upright Boiler.
1 Hillis & Jones Punch and Shears.
1 Heavy Flange Punch and Shears.
1 Heavy Flange Punch.
1 Large Styles & Farker Press.
2 Set Rubber Grindi-g Rolls.
2 se in, x 10 ft. Engine Lathes. New.
10 in. x 6 ft.
2 pond.
1 24 in. Bould & Eberhard Gear Cutter.
1 No. 9 Garvin milling Machine.
1 24 in. Bullard Drilling Machine.
2 Ames 4-Spindle Drills.
1 ratic. Heavy Slotting Machine.
1 pouble-Spindle Milling Machine.
1 in. Heavy Slotting Machine.
1 in. Morris & Tasker Pipe Threading Machine.
1 ain. Morris & Tasker Pipe Threading Machine.
2 Tanks, 8 ft. x 5 ft. 3 in.
1 Tank, 8 ft. diam x 8 ft. high.
1 Sy's ft diam x 5 ft. high.
Nos. 3, 4, 5 and 6 Woodward Ste-m Pumps.
ROBT. J. GRAY,
502 West Street, New York

# METALLURGICAL ENGINEERING.

I am prepared to furnish

ESTIMATES

SUPERINTEND THE CONSTRUCTION OF ROLL-ING MILLS AND MACHINERY, RE-GENERATIVE GAS FURNACES, TUBE AND PIPE MILLS, ETC., ETC.

I represent the latest improvements in all the bove branches,

M. V. SMITH, Metallurgical Engineer, Rooms 16, 17, and 18 Bissell Block. Pittsburgh, Pa.

#### For Sale.

The property and works of the Steel Company of Canada (1.d.), in Liquidation, situate at Acadia Minea, tounty of Colchester, Province of Nova Scotia, Dominion of Canada.

The property extends to about the control of the canada.

Scotia, Dominion of Canada.

The property extends to about 33,000 acres, well timbered.

There are two Coke Blast Furnaces, weekly capacity 400 tons; Coke Ovens; Rolling Mill, capacity 500 tons per week; Wheel and general Foundry, capacity 500 whee's per day.

The Mines are fully devel pod and in first class working order, and the works are now in operations.

working order, and the works are now in operation.

The Dominion Parliament has granted a bounty
on all Fig Iron manufactured in the Dominion or
\$1.65 per ton of 2240 lbs. for three years from 1st
of July instant, and \$1.12 per ton of 2240 lbs. for
three years from 1st of July, 1859.

Also the Chignetto Coal property belonging to
the Estate of the Steel Co. of Cabada (Ld), in
Liquidation, situate is Cumberland Consity, Nova
Scotia, consisting o' a mining area of four square
miles, and upwards of 1000 acres of well timbered
land, beld in freehold.

The Mine 1st thoroughly equipped with all the
appliances necessary for an output of 400 tons
per day, and is situated within two miles of the
main line of the Intercolonial Raliway, with
which it is connected by a branch belonging to the
property. All in first-rate order.

Application may be made to

A. T. PATERSON.

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aroperty. All in first-rate one.

Application may be made to

A. T. PATERSON,

P. O. Box 2002,

Montreal, Canada.

# NEW TOOLS FOR SALE.

We have following tools completed or nearly so

1 sé x 12 ft. Lathe.

1 06 X 25 ft. 1 48 X 18 ft.

1 36 x 36 x 9 ft. Planer.

• 36 x 36 x any length of bed Planers.

z 60-inch Pulley Turning Lathe, two tools THE

NEWARK MACHINE TOOL WORKS, EAST NEWARK, N. J.

# FOR SALE-BOILERS AND ENGINES.

Two 48 in. x 30 ft. Double Flue Bollers, with Drums, Fire Fronts, Valves, &c., complete, in good order and certified for 100 ibs. steam by American Steam Bolier Insurance Co; c+n be run separately or together. Also one Double Vertical > ngine. 16 x a; is. Cylinders, or can be made into two single engines; this engine is of the best construction and workmanship, is complete with Governor, &c. All the above will be sold very low. wery low.
MACKINTOSH, REMPHILL & CO., Ltd.
Pittsburgh, J

STAMP MILL FOR SALE. A Stamp Mill having five stamps. Particulars on application to THE UNITED STATES MITIS COMPANY, 26 Broadway, New York.

For Sale.

The Works of the Pembroks Iron Company, at Pembroke, Maine. Property consists of a dam and fine water-power, nail factory and rolling mill with a complete plant for the manufacture of all kinds of rolled iron. Persons wishing to manufacture or to buy machinery will find this a rare opportunity. For terms address, BENJAMIN LINCOLN,

Dennysville, Maine.

FOR SALE.—An old and well-established Hard-ware business in one of the best locations in Kansas City, Mo. For further particulars address "NAILS," Box 22, Office of The Iron Ags. 66 and 68 Duane St., N. Y.

WE want to get hold of Hardware Novelties in which there is money, to handle exclualvely in Canada.

JAMES FOSTER & SONS.,

143 and 145 king St. East,

Toronto.

#### Special Notices.

Second-hand Machinery in Good Order. For Sale Cheap.

Second-hand Machinery in Good Order. For Sale Cheap, I Engine Lathe, 48 in. x 20 ft. bed.

30 in. x 18 ft.

30 in. x 18 ft.

4 each 24 in. x 20 in. and 24 ft

4 each 24 in. x 20 in. and 24 ft

4 in. x 18 ft. bed. Fineld.

5 in. x 8 and 10 ft. bed. Putnam.

5 in. x 8 and 10 ft. bed. Putnam.

6 in. x 8 and 10 ft. bed. Putnam.

7 in. x 6 ft.

8 in. x 9 ft.

10 in. x 6 ft.

11 in. x 6 ft.

12 in. x 5 ft.

13 in. x 5 ft. Wm. Sollers & Co.

14 in. x 4 ft.

15 in. x 4 ft.

16 in. x 4 ft.

17 in. x 4 ft.

18 in. x 5 ft. Foot power.

19 in. x 4 ft.

19 in. x 5 ft.

10 in. x 3 ft.

10 in. x 4 and 5 ft.

11 in. x 4 ft.

12 in. x 5 ft.

13 in. x 5 ft.

14 in. x 4 in. x 4 and 5 ft.

15 in. x 5 in. x 5 in. x 5 in. 5 ft.

16 in. x 2 in. x 5 ft.

17 in. x 5 ft.

18 in. x 5 ft.

19 in. x 5 ft.

19 in. x 5 ft.

10 in. x 2 in. x

1 No. 52 Persecute Press.
1 No. 53 Persecute Press.
1 o Food Presses, assorted.
3 Power
12 Punching and Shearing Machines, assorted.
2 Return Tubular Boilers, 55 H.-P.
1 Vertical Boiler, 28 H.-P.
2 Hoisting Engines, 5 and to H.-P.
2 Hoisting Engines, 6 and to H.-P.
3 Small Hand Miller.
1 Horizontal Engine each 25 and 45 H.-P.
1 Virites Engine, to H.-P.
1 Die Sinking Machine.
1 Horizontal Engine, and 15 H.-P.
2 Die Sinking Machine.
2 Holizontal Engine, and 15 H.-P.
2 Die Sinking Machine.
3 Holizontal Engine, and 15 H.-P.
3 Lie-lb. Bradley Hammer.
3 Lie-lb. Bradley Hammer.
3 Lie-lb. Bradley Hammer.
3 Lie-lb. Bradley Hammer.
3 Screw Presses.
4 Rogers Wood Planer, 24 In. x 5 In.
4 Valve Miller.
5 Die Cutter, with Taps, Dies and Hobs, ½-inch to 2-inch, Incl. Wm. Sellers & Co.
5 Also full Hand Cheef TAYLOR MFG. Co., Engines, Boilers, &c. Correspondence solicited.
1 PRENTISS TOOL AND SUPPLY CO.
1 Presses.
1 No. 42 Dey St., New York City.

#### For Sale.

Foundry, 100 x 40 ft, and Machine Shop 60 x 20 ft., both with water privilege; also Japan and Packing House 63 x 22, Stove Storehouse 50 x 14 and Storehouse and Box Shop 30 x 20. All in good repair and running order; five minutes from steamboat and ten minutes from two railroad

WILLIAM KEIGHLEY'S EST ..

Middle Haddam, Conn.

#### For Sale.

18 Iron Tanks; 19 x 6 wide; 26 x 3 long; 61/4 deep; % Iron.

JAMES McHUGH,

556 N. 23d St., Philadelphia.

Large lot second-hand Iron Tanks, all sizes and shapes, from 5000 gals, down, and lot new 100 gal. Oil Tanks with pumps, all complete. Patterns for Rolling Mill Shears complete. Lot of Boiler Shells, different sizes. Cast Iron Kettles, cheap. Second hand Engines and Boilers, cheap. Wrought and Cast Scrap, Red and Yeilow Brass, Copper, Lead and Zinc.

BUSSENIUS, CUNLIFFE & 10..

Dealers in Scrap Iron and Oid Metals.
12th and Washington Ave., Philadelphia.

#### FOR SALE.

BAKER BLOWERS, Nos. 4 and 5.
ROOT BLOWERS, Nos. 1, 2, 4, 5 and 7.
SIURTEVANT do., Nos. 3, 4, 6, 7, 8 and 9.
RIDER HOT-AIR PUMPING ENGINE, ro-inch.
GAS ENGINE, 1 Horse Power. Careful attention given to purchasing for parties out of the city Correspondence solicited, C. R. BIGELOW, M. E.
45 Dey St., N. Y. City

For Sale, Machinery.

New, Especial Suspension
12-in, Crank Planer, Chucks and Tools. Prices low.
Shapers, Planers, Chucks and Tools. Co., Cleveland, Ohio.

#### For Sale.

A valuable Furnace Property, including the famous Dorsey Ore Bank, at Barre, Huntingdon County, Pa. Apply to

THE PROVIDENT LIFE AND TRUST COM-PANY OF PHILADELPHIA. 409 Chestnut Street

#### Cash Advances Upon Iron. DENNSYLVANIA WAREHOUSING AND SAFE DEPOSIT CO.,

Girard Building, 3d St., below Chestnut, Philadelphia. This Company is prepared to establish yards through out the iron regions at small cost, and to make ad-vances at moderate rates of interest. F. R. PEMBERTON, President.
JOHN MASON, Jr., Treas. and Secy.
GEO. H. EARLE, Jr., Solicito

Directors.—Clayton French John H. Converve, John H. Catherwood, George T. Lewis, John W. Hoffman, Edmund H. McCullough, F. R. Femberton.

### Wanted,

a first-class business man with \$5000 to \$10,000 capital, to assist in organizing and to take charge of the business affairs of a stock company in a live and growing Western city. The business is that of a Foundry and Machine Skop, now conducted by a firm and doing a good business in specialties. Satisfactory g a good business in spectral ven for making the change prop H. F. BASSETT,

# BRASS WANTED.

We purchase for cash Cld Brass, Composition Copper, and Brass Turnings. JERSEY CITY SMELTING WORKS.

107, 109 and 111 Plymouth Street, JERSEY CITY, N. J.

A YOUNG man, student of chemistry at the Massachusetts Institute of Technology, and at the University of Pennsylvania, with two years experience in analysis at iron works, wishes a position at an iron furnace (charcoal preferred) with a view to acquire a practical knowledge of iron-making. Salary a secondary consideration.

Address "A. W. W."

160z Callowhill St., Philadelphia, Pa.

#### Special Notices.

MACHINERY, SECOND-HAND AND NEW, ON HAND

n. x 42 in. Planer. Bridgeport. New.
a. x 3 ft. "Wheeler. Good.
a. x 4 ft. "New Haven. Good.
b. x 4 ft. "Thayer & H. Good.
b. x 6 ft. "Powell. New.
b. x 6 ft. "Putnam. Good.
b. x 6 ft. "Putnam. Good.
b. x 6 and 8 ft. Planers. Powell. New.
b. x 10 ft. "Pond. Nearly new.
b. x 10 ft. "Pond. Nearly new.
b. x 5 ft. Engine Lathe. 34 in. x 10 ft. rg. P. & W. Nearly net 12 in. x 5 ft. Engine Lathe. 14 in. x 5\(\frac{1}{2}\) ft. " Wood & Light. C din. x 6 ft. " Wood & Light. C din. x 6 ft. " Blajsdell. New. 18 in. x 9 ft. " Blajsdell. New. 18 in. x 12 ft. " Wright & Smith. 19 in. x 10, 12 and 14 ft. Engine Lathes. Pond. new. Harris, Good, Wood & Light, Good, Ames, Good, Blaisdell, New,

18 in. x 12 ft.

19 in. x 10, 12 and 14 ft. Engine Lathes. Pond. Nearly new.

20 in. x 10 ft. Engine Lathe. Blaisdell & Harris.

29 in. x 12 ft.

34 in. x 12 ft.

35 in. x 12 ft.

36 in. x 12 ft.

36 in. Vpright Drill, Back Geared and S. F. Pond Nearly new.

20 in. Upright Drill, Back Geared and S. F. Pond Nearly new.

20 in. Upright Drill, Plain. Prentice. New.

12 in. stroke sellers' Traveling Head Shaper.

24 in Shaper. Hendey. A.

15 in. and 24 in. Shapers. Wolcott. New. 10, 15, 20

16 in. Shapers. G. & Eberhardt.

16 in. and 24 in. Shapers. Wolcott. New. 10, 15, 20

17 in. Shapers. G. & Eberhardt.

18 in. Shapers. Hendey. A.

18 in. Shapers. Hendey. A.

19 in. Shapers. Wolcott. New. 10, 15, 20

19 in. Shapers. G. & Eberhardt.

19 in. Shapers. Hendey. A.

10 in. Shapers. Hendey. A.

11 in. Shapers. Hendey. A.

12 in. Shapers. Hendey. A.

13 in. Shapers. Hendey. A.

14 in. Shapers. Hendey. A.

15 in. Shapers. Hendey. A.

16 in. Hilss Squaring Shear. Power. Extra Heavy. A.

17 in. G. Shapers. Two Bradley Forges, No. 2. A.

16 in. Hilss Squaring Shear. Power. Extra Heavy. A.

17 in. G. Hende. New.

18 in. Shapers. Hendey. A.

18 in. Shapers. Hende. Henders. Hende. New.

18 in. Shapers. Hende. Henders. Hende. New.

19 in. Shapers. Hende. Henders. Hende. New.

19 in. Shapers. Hende. Henders. Hender. H

E. P. BULLARD. 14 Dey Street, N. Y.

### SCRAP IRON.

We buy all kinds of Iron and Stee Scrap, Burnt Iron, Old Rails, &c., &c. Write us, naming quan tity. price, &c.

ROBINSON & ORR, 115 Water St., Pittsburgh, Pa. (ESTABLISHED 1859.)

## IRON AND STEEL SCRAP

Bought and Sold. JAMES H. LOGAN,

Pig Iron Commission Merchant, 93 Fourth Ave., - PITTSBURGH, PA.

#### SCRAP IRON.

We buy all classes of Iron and Steel Scrap Wrought Turnings, Cast Borings, Burnt Metal, &c GEO. A. MCLEAN & CO.,

> Room 28, Lewis Block, P. O. Box 455, Pittsburgh, Pa.

# NOTICE.

We buy and sell all classes of Iron and Steel Scrap. Correspondence solicited. JOS. C. POULTERER & CO., 204 S. Third St., Philadelphia.

#### Cotton Gin Ribs.

HARDWARE MERCHANTS

and others furnished with materials of all kinds for making and repairing COTTON GINS. RIBS and SAWS for repairing ALL makes of gins. Send for Price List. Address THE BROWN COT-TON GIN CO., Manufacturers of Cotton Gins, Feeders and Condensers, New London, Conn.

#### Bargains in Machinery.

#### FOR SALE.

Parties intending manufacturing Tools or Machinery will find it worth while to examine the property known as the Stirling Chain Works, Buffalo, N. Y. The plant can very readily be adapted to other purposes as well as to those for which it was originally intended. The location is eligible in all respects. Descriptive circulars will be sent on application to JOHN OTTO & SON, Buffalo, N. Y.

#### For Sale.

Damaged Band and Rod Iron. For sale low or in exchange for Scrap Iron or Scrap Steel. DAN'L W. RICHARDS & CO.,

in Scrap Iron, Scrap Steel and Metals

93 MANGIN ST., NEW YORK. FOR SALE. New Hoisting Machines, worm geared; Three-Spindle Nut Tapper; Fox Lathe, back geared; 16, 18, 20 inch Engine Lathes; Hoop from Testing Machine; Small Slotter; Plauer Knife Grinder; 8, 10, 12 inch Horizontal Engines, with Boilers.

A. G. BROOKS,

261 North Third Street, - Philadelphia. The following Second-hand Machinery is for Sale at low prices.

3 new Flue Boilers, 54 in. diam., 34 ft. long, 2 Flues, 16 in. diam., with fronts complete; 1 Fulley, 10 ft. diam., 51 in. face, 1154 bore; 1 Fly Wheel, 30 ft. diam., 8 cast and 8 wrought arms, weight about 12 tons, 1256, in. bore; 1 Fan Blower Case, 76 in. diam., 32 in. wide; 7 an, 73 in. diam., 34 in. wide; 1 Rattler, 26 in. diam. fan, 73 in. diam., 24 in. water 48 in. long inside. Apply to TAUNTON COPPER MANUFACTURING CO., TAUNTON COPPER MANUFACTURING CO.,

### Manager Wanted

for an Anthracite Furnace; one sufficiently familiar with chemistry to analyze his own stock and products preferred. Address, stating age, and products preferences, experience and references, "B,"

Office of The Iron Age, 66 and 68 Duane St., N. Y.

#### Wanted.

A competent Draughtsman accustomed to Steel Works construction and Steam Engineering. Address, stating salary expected, experience and references, "DRAUGHTSMAN,"

Lock Box, 1086, Philadelphia,

PR

POCK POI E

HAY

12 Mu Sales he ited. We porters. Spe

Having novelties solicit co pushed. th sober, in perience to years of mended. dress, sta "NAIL F. 68 Duane

A Chem and Openduct labor

F One pair One pair One Dou Three 12-All in good

WANTEI Iron or Steeman having education. mee of The

Large Bu

#### Special Notices.

### Second-hand Machinery for Sale.

Two Engine Lathes, 87 in. swing, 20 ft. 6 in. bed, Geared in Face Plate, Screw Feed, Compound Rest.

One Engine Lathe, 15 in. x 6 ft. One Cylinder Boring Lathe, 33 in. x 10 ft. bed. One Am. Tool Co. Cabinet Turret Lathe, 20 in. x 7 ft. Same as new.

One Boring Lathe, 42 in. x 14 ft. ne Iron Planer, planes 24 ft. long, 62 in. x 62 in. Excellent condition.

One Iron Planer, planes 8 ft. long, 30 in. x 30 in. Two Iron Planers, plane 6 ft. long, 24 in. wide. Three Iron Planers, plane 4 ft. long, 24 in x 24 in. Three Iron Planers plane 5 ft. long, 20 in. x 20 in. One Oliver Bros. & Phillips' Bolt Header.

One Four-Spindle Nut Tapper. One 1750-lb. Bement Steam Hammer. Excellent.

One Small Steam Hammer.
One Putnam Machine Co.'s Planer, 36 x 36 x 12,

very heavy.
One Hydraulic Wheel Press.

One 25-inch stroke Shaping Machine. One No. 3 Portable Drill.

One Steam Riveting Machine. One 6co-lb, Drop Hammer.

One Slotting Machine, 6-in. stroke. Bement's

make. One Profiling Machine. One Axle Lathe, for car axles.

One Durrell 7 Spindle Nut Tapper. Send for lists New and Second-hand Tools, too ong for publication. Sole Agents EDISON SHAFTING MFG. CO.

THE GEO. PLACE MACHINERY CO., 121 Chambers and 108 Reade Streets, NEW YORK.

### BARGAINS.

One 26 x 42 in. Hor Engine, Goodwin Cut-off,
One 20 x 48 in. Corliss Engine.
One 14 x 15 Vertical New York Safety Engine.
One 8 H.-P Shapley Engine and Boiler,
One 6 H.-P. Baxter Engine.
One 10 H.-P. Ligerwood Holeting Engine.
One 10 H.-P. Ligerwood Holeting Engine.
One 10 H.-D. William of the Corling Engine.
One 10 H. William of the Corling Engine.
One 10 H. William of the Corling Engine.
One 10 H. William of the Corling Engine.
One 13 H. William of the Corling Engine.
One 13 H. William of the Corling Engine.
One 13 Spindle Pratt & Whitney Drill. One 15-in.

One 15-in.

One 15-in.

One 15-in.

One 3-Spindle Pratt & Whitney Drill.

One 30-in. Boring and Turning Mill.

One 20-in. Boring and Turning Mill.

One 20-in. N. Y. Steam Engine Co. Comp'd Planer.

One 30-in.

One 50-in.

One 50-in. One 30 H.-P.
One 30 H.-P.
One 3 H.-P.
One 5 H.-P.
One 5 H.-P.
One 5 H.-P.
One 5 H.-P.
One 14-in. Steam Cylinder Worthington Duplex

Pump.
Write and say what you want I have a large lock, constantly changing.
HENRY I. SNELL, 135 North 3d Street, Philadelphia

#### FOR SALE.

1600 lb. ¾ ir. x ¼ in. Cant Hook Steel,
1400 lb. 13-16 inch "
Lot left after finishing a contract. Will sell

BEECHER & PECK, New Haven, Conn.

#### FOR SALE.

A nearly new four-ton Steam Hammer, in first-class condition Made by the Morgan & Williams Engineering Co., of Alliance, Ohio. Very best manufacture. Address WORCESTER STEEL WORKS, Worcester, Mess.

LARGE SIZE, 500 Pages, 6 x 916 in. each. \$8.00. POCKET SIZE, 250 Pages, 4 x 7 in., each, \$4.00. Send for Circulars.

#### B. LAMBERSON.

PORTLAND, OREGON. EUGENE BISSELL, Auctioneer.

HAYDOCK & BISSELL, Successors to ROBERT R. HAYDOCK & Co., and E. BISSELL & Co., WHOLESALE

HARDWARE AUCTIONEERS, 13 Murray St. and 15 Park Place, N. Y. Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

### Specialties in Cutlery.

novelties in Cutlery. Shears, Edge Tools, &c., we still toward the interior, partly due to new solicit correspondence with inventors or any who desire to have these articles manufactured and But the gold arrivals from Europe have EMPIRE KNIFE CO.,

West Winsted, Conn. ANTED. Superintendant for nail factory in the Western Nail Association. Must be sober, industrious and a practical nailer, with ex-perience in running self-feeders. A man not over 40 years of age preferred; must come well reco-mended. A good situation to the right man. Ad-dress, stating compensation expected, dress, stating compensation expected, "NAIL FACTORY." office of The Iron Age, 86 and 68 Duane St., New York,

#### WANTED.

A Chemist. One experienced in Blast-Furnace and Open-Hearth Steel Work preferred. To conduct laboratory work, &c.

Apply CHESTER ROLLING MILLS,

All in good order. Will be sold cheap. Apply to

WANTED—A position as Blast-Furnace Manager,
Assistant Superintendent or other position in
Iron or Steel works, in line of promotion, by a young
man having had practical experience and a technical
education. Address
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Office of The Iron Age, 66 and 68 Duane Street, N. Y.

# Trade Report.

#### British Iron and Metal Markets.

[Special Cable Dispatch to The Iron Age.] LONDON, WEDNESDAY, September 8, 1866.

Scotch Pig.-The market is dull and devoid of interest, and we continue to quote as follows. Prices remain the same, viz.:

Coltness, alongside, Glasgow.

Langloan, """
Gartsherrie, """
Carpbros, """ Gartsherrie,
Carnbroe,
Glegarnock,
Glegarnock,
Eglinton,
Dalmellington,
Shotts,
at Leith. Carriage from Ardrossan to Glasgow is 1/ % ton.

Cleveland Pig.-There is no change to report in this market, which remains in the same condition noted last week. We continue quotations as follows:

Middlesboro', No. 1 Foundry.....
" No. 2 " ......
" No. 3 " .....
" No. 4 Forge... ......30 @ 30/6 29/0

Bessemer Pig-The market is without change-steady at last week's quotations, viz.: W. C. Hematites, 42/ for mixed lots, Nos. 1, 2 and 3, equal portions, f.o.b. ship ping ports.

Manufactured Iron-We have to repor an irregular market. No feature of interest to note. Quotations remain the same, viz.:

# s. d. # s. d. 7 0 0 @ 7 10 0 5 10 0 @ 6 0 0 4 17 6 @ 5 5 0 Staff. Ord. Marked Bars...
Medium "Common "Common "Common "Common "Common "Common "Common "Common Books 20 W. G. and over. 7 5 0 @ 8 0 6 5 0 @ 7 0

Steel Rails .- The market is unchanged and prices remain as last week, viz.: Ordinary sections, £3. 12/6 @ £3. 17/6, f.o.b. shipping ports. Large sales for delivery this year have, it is stated, been made for United States account, and inquiries for large amounts are in the market.

Old Rails-The Old Rail market is dull and without interest, and prices may be quoted same as last week, viz.: Old D.H.'s, o.i.f. New York, 56/.

Scrap.—There is no change in the market, and prices do not move. Heavy Wrought, 50/; Bessemer Crop Ends, run of mill, 54/ @ 56/, c.i.f. New York.

Copper-The market might be called un changed, although there is a slight advance in Chili Bars. Best Selected, £42. 10/ @ £43. 10/, and Chili Bars, £39. 10/ @ £40.

Tin .- There is no change whatever in this market, and we continue last week's quotations. Straits, spot, £99 @ £99. 10/, and futures, £99. 15/@ £100. 5/.

Tin Plates .- The market continues irregular, and may be quoted 1/ lower on Coke seconds, viz.: 

Spelter .- No change whatever to report

in this market. Ordinary at shipping ports, £13. 15/@ £14. Freights.-Steam from Glasgow to New York, 5/.

#### Financial.

Office of The Iron Age, Wednesday Evening, September 8, 1886.

The fall trade is now fairly commenced and accounts from all departments are satisfactory as to the present situation and pros-To some extent business in New York has been restricted by want of money, for the low stage of the bank reserves makes it difficult to market commercial paper, and tradesmen are in a measure cast off from their ordinary resources until returns can be realized from maturing bills. More active money at other centers is reexcelled facilities for manufacturing | flected here, so that the flow of currency is oil developments and excitement in wool. been on a liberal scale, and in addition disbursements from the Treasury in response to bond calls have given timely re lief. The railway rates for domestic exchange afford no indication that the current will turn in favor of New York for some weeks to come. London papers speak of the silver difficulty as the "one element of danger in America," and from this circumstance, added to other possibilities of something unusual, the editors find ample reason for the recent advance of the rate of discount by the Bank of England. They do not profess, however, to discover any present signs that a crisis is impending. The posted rates for bankers' sterling in New

several days of extreme dullness, and since 4, £38. 17/6; 6, £39; 7, £39. 5/; 8, £39. then the market has been generally strong. The monetary situation was the chief cause whole list moved upward, but was inclined to On Thursday prices were irregular and the tone was heavy at the close, the foreign follow: Western Union, 681/8; St. Paul, 94%: Consolidated Gas, 79%; Missouri Pacific, 110%; Lackawanna, 139%; Delaware and Hudson, 1003; Erie, 33; Kansas and Texas, 32; Lake Shore, 883%; Louisville, 45 1/8; New York Central, 120 1/8; New York and New England, 45%; Northwestern, 1161/8; Northern Pacific, preferred, 603; Pacific Mail, 577; Reading, 2614; Omaha, 481/2; preferred, 1111/2; Union Pacific, 5634.

United States bonds closed as follows:

Chited States boilds closed as	TOHOW	
U. S. 8 per cents	Bid. 10014	Asked.
U. S. 4168, 1891, coupon	110	11016
U. S. 48, 1907, coupon	126	19614
U. S. Currency 6s, 1895	12434	-
U. S. Currency 6s, 1896	12714	-
U. S. Currency 68, 1897	129%	4000
U. S Currency 6s, 1898	13256	10000
U. S. Currency 6s, 1899	134%	-

In our staple commodities there has been only a moderate movement during the week, which may be attributed in part to reaction now that war rumors from abroad are not so immediately threatening. The markets consequently are scarcely so strong. Despite this fact, reports from the leading industries, as from our dry-goods jobbers and grocers, show that a goodly volume of business is in progress. Respecting dry goods, the distribution for consumption has been large, more healthy and vigorous than for many seasons. The bank clearances at 30 leading cities last week indicate a gain of 6.7 %, compared with the corresponding week last year; outside of New York the gain is 21.5 %. Only six of the cities reporting show a decrease. Clearances of 30 cities for the month of August show an increase of 149%, and for the eight months of the current year ending August 31 an increase of 24.9 %, compared with August, 1885. The improvement is traceable to an increase in legitimate trade rather than to speculation. With the exception of ill-fated Charleston, the trade advices coming by mail from different points are encouraging. In Chicago, we are told, business is "away ahead" of last year, and the large receipts of wheat at primary markets are regarded as a presage of more abundant money. A dispatch from Indianapolis says farmers are no longer "holding for a rise," and trade is looking up in all directions. The Minneapolis Trib-une says: "The Northwest is entering upon the fall trade under the most favorable conditions, and the last four months of 1886 will be memorable in the annals of this section's traffic." Philadelphia and Baltimore both notice an improvement compared with last year. Respecting Charleston, President Witte, of the People's Bank, says the business facilities of the city remain intact, and the banks are in a position to negotiate approved paper. The action of the New York Chamber of Commerce in extend-

ing relief is gratefully acknowledged. The imports at this port during the week are \$653,000 above those of the previous week, the total valuation being \$9,208,751, including nearly \$3,000,000 in dry goods making the aggregate since January I, \$293,689,795, as compared with \$264,955,689 for the same time in 1885, and \$303,806,000 in 1884. The exports of merchandise were nearly \$200,000 below those of the previous week, the total valuation being \$6,365,586, making the aggregate since January I \$216,649,509, as against \$228,000,000 for

exports of specie from this port during the week were \$196,898, making a total since a total since January I of \$11,400,000, as expected. compared with \$7,867,000 for the same time

The largest banking firms in Wall street unite in a protest against the proposed listing of Georgia State bonds "so long as Georgia remains dishonored by repudiation.

#### Metal Market.

Copper.-During the week under review Apply CHESTER ROLLING MILLS,
Thurlow, Pe.
FOR SALE:

One pair Rail Shears, with Engine.
One pair Rail Shears, with Engine the market continued strong, with a large

7/6. Best Selected gave way 5/to £42. 15/.
Tin—Has been irregular, owing to tempoof anxiety, but there is now a tendency to rarily large arrivals. A small portion of greater ease. On Monday stocks were in- these having been pressed on the market fluenced by the firmer tone in London, and the when delivery came around, this has for the moment made the tendency appear weaker, droop at the close, owing to realizations. but it has at the same time prevented fresh supplies from being shipped to this side. In this manner the market will not be overnews being unsettling. To-day the market supplied in the near future, the less so as was excessively dull, but firm. Quotations London has simultaneously given some signs of a steady improvement, owing to the great reduction in the visible supply there. Spot and September Tin here must be called firm at 21.70¢ @ 21.75¢; for October delivery there are buyers at 21.80¢; for November, 21.85¢ is bid and refused. October-Novem ber could have been bought at 21.90¢. Fresh shipments from London are strongly held at 21.95¢ @ 22¢. The net import of Tin into the United States during the first seven months has been 15,862,380 lb, against 10,906,075 in 1885. London cables spot Straits £99, and three months' £99. 15/. Tin Plates .- A moderate, steady demand has prevailed at ensuing quotations for large lines, ordinary brands, per box : Charcoal Bright, \$4.65 @ \$4.85; do. Ternes, \$4.20 @ \$4.35, and Coke Tin, \$4.47½ @ \$4.35. Liverpool remains steady at 12/9 @ 13/ Coke, and 15/ @ 17/ Charcoal. Net import into the United States first seven months, 376,570,892 lb, against 317,080,-161 last year.

Lead .- September and October are usually the most active months, but the past week has been one of utter indifferencedifficult to account for. There sold in a small way about 200 tons Common Domestic at 43/¢, which is the nominal closing figure. Refined we call nominally \$4.80; St. Louis is \$4.50 @ \$4.55, and Chicago \$4.60. In London Soft Spanish is £12. 17/6, and English Pig £13. 5/.

Spelter and Zinc .- Our market for Common Domestic Spelter has been featureless and dull at \$4.40 @ \$4.50, while Silesian is worth \$4.70 nominally. In London the latter is £13. 15/. Bertha Refined we quote 8¢. Sheet Zinc has been quiet 5.60¢ @ 5.85¢, Domestic.

Antimony-A moderate demand has prevailed for Cookson at 9.10¢ @ 9.25¢, while Hallett was dull at 7\(\psi\) \( \phi\) \( \text{@ 8\$\psi} \); the latter is unaltered at \( \mathcal{E}\_{30} \) in London.

ч	is distreted at 230 in London.
Ч	
	New York Metal Exchange.
: ]	The following sales are reported:
	THURSDAY, September 2.
	10 tons Tin, spot     21.80¢       25 tons Tin, September     21.75¢       5 tons Tin, September     21.70¢       25,000 b Lake Copper     10.25¢
	FRIDAY, September 3.
3	40 tons Tin, October
	SATURDAY, September 4,
	10 tons Tin, spot 21.70¢
8	Monday, September 6.
	25 tons Tin, September
,	25 tons Tin, October   21.80¢   25,000
8	50,000 % Lake, December 10.60¢
-	Tuesday, September 7.

#### Coal Market.

10 tons Tin, spot ...... 21.60¢

Since the advance in the prices of Anthracite noticed a week ago trade has been quiet, aside from deliveries on former orders. On the 15th inst. the expediency of a further advance will be discussed, perhaps with the object of stimulating the market, as orders are somewhat backward. Meanwhile the schedule is as follows: Broken, \$3.40; Egg, \$2.55; Stove, \$3.90; Chestnut, \$3.45, f.o.b. vessels at shipping ports. The Pennsylvania Coal Company's circular is a shade under, viz., for delivery f.o.b. at Newburg: the same time last year and \$219,000,000 in Lump, \$3.35; Grate, \$3.30; Egg, \$3.40; 1884. The items include 67,025 barrels Stove, \$3.80; Chestnut, \$3.55; Pea, \$2.20. wheat flour, 678,724 bushels wheat, 178,868 bushels corn, 13,276 bales cotton, 7,879,080 ward, but renewed activity is looked for at ward, but renewed activity is looked for at house the color of the postponed their meeting with reference to tolls until Friday. It is expected that the Per. caps. case 1 According to the Custom House report the postponed their meeting with reference to Pennsylvania Schuylkill Valley Railroad January 1 of \$43,677,511, compared with will be completed into the Anthracite re-\$18,668,000 for the same time in 1885, and gions during October or November, and a the imports amounted to \$3,979,425, making further reduction in Coal tolls will then be

The total amount of Anthracite Coal sent to market for the week was 376,237 tons, compared with 734,004 tons in the corresponding week last year, a decrease of 357,767 tons. The total amount of Anthracite mined thus far in the year 1886 is 19,747,430 tons, compared with 18,572,719 tons for the same period last year, an increase of 1,174,-711 tons. The shipments from the mines of the Cumberland Coal region for the week ending August 28 were 73,772 tons, and for the year to that date 1,403,892 tons, a de-

cotton corporations in New England, the stock of only 13 is selling at a decline from last year, while 37 show an advance ranging from 5 to 25 per cent. of the par value.

#### Exports.

The following table presents the Exports of Hardware, Iron, Steel, Metals, &c., from the port of New York, for the week ending September 7, 1886:

Dutch West Indies. Hong Kong. \$10 Cartridges, cs 5 40 Quan. Val. Tinware, cs... 2 Mf. iron, pkgs 7 Empty shells, Hdw., cs. ..

42 Sew. ma., cs. 307 2, 126 Hdw., cs. 55 1, 470 Mf. fron, pkgs 21 450 Ag. mp. pkgs 7 845 Mf. iron, pkge. 1 33 Cop., casiss. 450 36,250 Cop., casiss. 450 36,250 Valves, cs. 6 224 rollers, cse. 1 Gothenburg. 417 Valves, cs...
958 Marseilles,
Clooks, brs... 43 492
Hdw., cs.... 10 1,016
Granite ware,
cs.... 3 214
7 1.347 Sew. ma., cs. 8 158

Cuba.
922 3,94 Hdw., cs.... 37 Clocks, pkgs.. 58 Ag. imp.,pkgs 4 Hamburg.

Copenhagen.

Cubes.

Hdw., pkgs. ... 222
Cutlery, pkgs 61
Ag.imp., pkgs 78
Valves, cs. ... 3
Tinware, cs. ... 12
Water closets. 4
Saws, cs. ... 2
Nails, cs. ... 56
Mf. iron, pkgs 624
Cartridges, cs. 624 Clocks, pkgs. Hdw., cs. . . . Cutlery, cs. . . 152 82 89 Bremen. Cartridges, es 5
Mach'y, pkgs. 308
Nails, kegs. ... 30
Pumps, pkgs. 4
Sew. ma., cs. 16
Brass goods,
case. . . . 1 Hdw., cs. . . . 26 Mf. iron, pkgs 17 Sew. ma., cs. 18 Metal goods,  $\frac{600}{375}$ 

Cop. goods, cs Clocks, pkgs.. Ag.imp., pkgs Sew. ma., cse. Barcelona Tin nozzles...8174 Saws, cs..... 11 Mf. steel, bxs. 2 French West Indies Tinware, cs.. 4 48 Mf. iron, pkgs 6 21 Rotterdam. Mach'y, pkgs. 2 Hdw., cs.... 88 Spanish Possessions in Africa. Amsterdam.

Clocks, cs. . . . 11 Sew. ma., cs. . . 13 Hdw., cs. . . . 6 9:25 Pumps, cks... 14 Liverpool. Clocks, bxs.... 106 Cutlery, cs.... 2 Hdw., cs..... 29 Venezuela Mf. iron, pkgs. 84 Iron, pkgs. 81 Needles, pkgs 2 Pumps, pkgs. 9 ridw., pkgs. 53 Hdw. cs. ... 29 611
Copper matte,
sacks ... 433 60,296
Pamphlets, cs 9 45
Scales, cs. ... 2 64
Copper, cakes 572 12,935
Mf. iron, pkg 8 4 850
Sew. ma., cs. 300 5,900
Mach'y, pkgs. 11 1,973
Pumps, pkgs. 2 144
Copper, cks. 164 20,500 Ag. imp., pkge 1
Mach'y, pkgs. 32
Cutlery, pkgs. 4
Tinware, pkgs 10
Tacks, cs. 3
Mf.copper, cse 1
Boiler tubes. 15
Nalls, kegs. 5 Antwerp.

Sew. ma., cse. Firearms, cs.. Hdw., cs.... Constantinople. Mach'y, pkgs. 7 938 Mr. iron, pkgs 140 5,000 Cutlery, cs. . 2 185 Pumps, pkgs. 2 150 United States of Colombia.

Sew. ma., cs. 229 3,137
Mf. iron, pkgs 280 2,469
Cartridges, cs 9 184
2g. fmp., pkgs 13 490
Valves, case. 1 265
Clocks, bxs. 17 265
Nails, kegs. 50 108
Tinware, cs. 4 4 201 Hull. Hutt.

S. rollers, cs. 10

Pumps, pkge. 1

Iron safe. 1

Hdw., cs. 3

Clocks, pkgs. 20

Mach'y, pkgs. 5

Clocks, cs. 20

Scales, cs. 220 Glasgow. Mach'y, pkgs.2668 31,540 8. rollers, cs. 18 418

18 418 606 CB...... Nails, cs..... Graniteware, Sew. ma., cs... Water pipe, pcs..... Firearms, cs... White metal 46 2,257 10 1,600 Pumps, pkge. 1

Central America. Ag.imp., pkge Leith. Cutlery, cs . . . Ag. imp.,pkgs Tinware, cs. . . Ag.imp., pkge 1 Shot, bxs..... Sew. ma., cs.. Cartridges, cs.. Mach'y, pkgs. Bar lead, bxs. Electric mat'l,

Wringers, cs. Cartridges, cae Hdw., cs.... B. rollers, cae. Steel bars, bdls Iron, pkgs.... Firearms, cs.. 1 14 18 215 291 52,000 Clocks, cs .... Rifles, cs ..... Steel washers, Steel washers, kegs. 9 75
Guns. cs 5 650
Mf. iron, pkgs 3 109
Mach'y, pkgs. 45 3,748
Sew. ma., cs.. 78 2,853
Guns. cs 81 13,000
W. mills, cs 21 850
Saws, cs 13 1,027
Fumps, pkgs. 9 100
Clocks, pkgs. 9 100
Cartridges, cs. 2105 30,403
Ag.Imp., pkgs. 11 50 Per. caps. cs. Nails, kegs.. Zinc, casks. Spikes, kegs. Brazit. Pumps, pkgs. 6
Ag.imp., pkgs 36
Car-wheels... 53

Naples. Gibraltar.

Mf. iron,pkgs. 259 Hdw. pkgs. 25 Ag. imp. pkgs. 12 Nails, kegs. 128 B. metal, case 1 Pumps, pkgs. 4 Brass goods, case. 1 Tinware, case 1 (locks, cs.... 19 Hdw., cs.... 12 Firearms, cs... 2 Nova Scotia. 874
819 Cartridges, cs
48 Boiler tubes.
46 Firearms, cs..
Mach'y, pkgs.
Clocks, bxs. British Honduras. Nails, kegs.... 5

British Guiana. Hdw., cs, .... 2 Ag. imp.,pkgs 4 Mf. iron, pkgs 8 British West Indies. Hdw., pkgs... 43 Tinware, cs... 6 Nails, bxs.... 21 Tinware, .... Yi Nails, bxs.... Yi Car-wheels, pr. 4 Mf. iron. pkgsi167 Clocks. cs... 5 Clocks. cs... 5 Clocks. cs... 5 61
Nails, kegs... 77
908
Pumps, pkgs. 4 50
Sew. ma. cs. 2 45
Tacks, cs... 3 20
Mach'y, pkge. 1 25
British Australia.

154 Cales, cs. 8
254 Scales, cs. 8
Hdw.case 1
Mf. iron, pkgs 2
75
856
61 Hiw., pkgs. 175
896
62 Hiw., pkgs. 185
63 Pumps, pkgs. 34
80 Kiron, pkgs. 5
90 Ag. imp., pkgs. 5
91 Ciocks, pkgs. 89
80 Kashing ma. Argentine Republic. H iw., pkgs. . . 175 8,009 Sew. ma., cs., 550 9,837 Pumps, pkgs. 34 638 Nails, kegs. . . 4 21 Mf. iron,pkgs. 5 94 Ag. imp.,pkgs Clocks, pkgs.. Washing ma., 
 pkgs
 ...
 38
 441

 Agateware, cs
 19
 320

 Bellows
 ...
 18
 135

 S. engines
 4
 1,900

# Trade Report.

#### New York.

American Plg. -So far as the happenings of the week are concerned there is nothing to report. One of the largest companies has during the past few weeks taken a number of round blocks, and has now sold its entire output for the year. While no striking events have occurred to cause a sudden change of feeling, it may be stated that the conviction is gaining ground that when the time comes for closing next year's contracts an increased price will be demanded by sellers and conceded by buyers. Almost imperceptibly the market has been drifting in that direction, and if the features which are now shaping it—viz., a growing consumption, light stocks and little reserve in the way of available capacity-continue, a moderate advance seems certain. There is room for it without opening the floodgates for Foreign Iron, and the wellknown conservatism of those at the head of affairs of our leading producers is a guarantee that no injudicious movement will be attempted. We quote standard brands Foundry No. 1, \$18 @ \$18.50; No. 2, \$17 @ \$17.50, and Gray Forge, \$15.75 @ \$16.25.

Scotch Pig.-There is nothing of special interest to report. We quote nominally as follows for small lots: Coltness, \$20 to arrive : Gartsherrie, \$19.50 to arrive : Shotts and Langloan, \$19.50 @ \$20 to arrive; Carnbroe and Glengarnock, \$19 to arrive; Summerlee, \$19.75 to arrive; Dalmellington, \$19 to arrive; Eglinton, \$17.75 @ \$18 to arrive, and Clyde, \$19 to arrive.

Bessemer Pig .- This market is dull at \$18.75 @ \$10 nominally for Foreign at tidewater, and \$18 @ \$18.25 for Domestic at

Spiegeleisen .- We do not hear of any business and continue to quote English 20 % nominally \$25.25 @ \$25.50.

Bar Iron.—There has been no material change in the situation. Common Iron, 1.65¢ @ 1.70¢; Medium, 1.70¢ @ 1.75¢, and Refined Iron, 1.75¢ @ 1.9¢.

Structural Iron and Steel .- There is a better feeling, which finds expression in a closer scrutiny of orders, a thinning of the ranks of low sellers and a disposition to ask an advance. As yet, however, better prices are not general enough to justify higher quotations. We quote, according to quality, for Angles 1.95# @ 2.10#, delivered, and Tees at 2.35¢ @ 2.45¢, for round lots. Steel Angles are quoted 2.35# @ 2.45#, according to quality. quotations remain 2.25\$ @ 2.4\$ for Angles, and 2.6¢ @ 2.7¢ for Tees. American Beams and Channels are nominally 3# base from dock for all orders.

Plates.—The majority of the mills are better supplied with orders than they have been for a long time, and many of them are asking higher prices. We quote for round Common or Tank, 2.10# @ 2.20#; Refined, 21/4 @ 21/4; Shell, 2.4 @ 21/4; Flange, 3.25¢ @ 3½¢; Flange, Extra, 4¢ mium, and are well taken up. Southern @ 4¼¢. For small lots of Steel Plates the Irons are not offered at any price likely to quotations are as follows: Tank, 2.70# @ attract bids; low prices, in fact, are the 2.75¢; Ship, 3¢; Shell, 3¼¢; Flange, 3½¢, only inducement that consumers find in and Fire-Box, 4¢ @ 41/2¢, on dock.

Merchant Steel .- We quote nominally for the range of ordinary to good grades as follows: American Tool Steels, 71/4 @ 9#; Tool Steel of special grades and finer qualities, 12¢ @ 20¢; English Tool, 13¢ @ 15½¢; common grades, 7¢ @ 9¢; Crucible Machinery, 3.75 € @ 4.50 €. The Steel Association quotes base prices: Round and Flat Spring, 2.6#; Round-Edge Tire, 2.3#; Square-Edge Tire, 2.5¢; Toe Calk, 2.4; Sleigh Shoe, 2.2¢ @ 2.5¢; Open-Hearth

Steel-Wire Rods.—There has been some cult to cover. It is reported that August sales of Plain Wire have been very heavy. We quote for early shipment Foreign Rods, \$37 @ 37.50, and for later deliveries \$36.50.

Steel Blooms.-There is considerable talk of business, but we have been unable to trace it to any authentic source. Higher prices are asked for Blooms, say \$26.50 @ \$27, which makes it impossible to produce Rails from them at present prices.

Steel Nail Slabs .- We hear of considerable business during the past week at \$28 @ \$29 at tidewater.

Steel Billets .- Higher quotations are being made, \$27.50 @ \$28.50 being asked for 4-inch Billets.

Steel Rails.-It is reported that considerable business has been placed during the past week, among the contracts being one of 10,000 tons for the Erie Railroad. The representative of the Edgar Thomson Works authorizes the denial of the state ment published in the Pittsburgh newspapers that the Chicago, Burlington and Quincy order has been placed there. There is con siderable inquiry for 1887 delivery, which may be quoted \$33.50 (a \$34, while 1886 delivery commands \$34 @ \$35. We hear of no sales of Foreign Rails.

Steel Scrap .- We hear of a sale of 1000 tons of Foreign Bloom and Billet Ends at called to bid upon. Prospects are consid-private terms. We quote for this class of ered to be entirely satisfactory, and there now so great that it is not near so immaterial \$19.25, tidewater.

ome inquiry and some business lately.

Old Rails .- The improved tendency continues, there being considerable demand in the aggregate for early delivery, with little available, the bulk of the stock being held for higher prices. We hear of the sale of a 3000-ton lot in Florida. A number of offers have been cabled abroad, but there is considerable difficulty about securing freights. Cables quote 56/, with little available at that. In this market \$21 is bid for T's and \$22 for D. H.'s in store.

Rail Fastenings .- We quote 2.25¢ @ .40¢ for Spikes, delivered, and 1.85¢ @ 2¢ for Angle Fish Bars.

#### Philadelphia.

Office of The Iron Age, 220 South Fourth St., (PHILADELPHIA, September 7, 1886.

Pig Iron.-There is no change to notice the demand being of the same character as noted for many weeks past. Large sales are seldom heard of, for the reason that contracts made during the first half of the year are still uncompleted, so that as yet there has been no necessity for renewing them, while the outlook is not such as to encourage either buyer or seller to discount the future to any great extent. The attitude is therefore a waiting one, and the demand from day to day regulated by the immediate requirements of the buyer. cannot be said that the market has either gained or lost anything of late; some are a little weak, perhaps, but they are few in number and offset by others who are firm at full quoted rates. The very large output of Pig Iron has been an effectual barrier against anything like an advance, and as the indications do not point to any disproportion between supply and demand there is no apparent reason for any change in prices. may be remarked, however, that there is an undercurrent of strength which might rapidly develop into higher prices, providing something gave it a start. Higher prices have been so often predicted, and have so often failed to materialize, that people are afraid to express their opinions freely, although, as we have said, there is a lingering suspicion that the market may at any mo ment take on extraordinary strength and activity. Meanwhile, with a large production and an equally large consumpsion, it would require only a very slight gain in either one to decide the question of prices for some months to come. The chances seem to favor an increasing demand, as consumers of all classes are piling up orders, which will require a vast amount of material during the next three months. Developments will therefore be carefully watched, so as to take whatever advantages may be offered by being first in the market. Sales have been on about the basis of last week's prices, say \$18.50 @ \$19 at tide for No. 1 Foundry; \$16.75 @ \$17.25 for No. 2, and \$15.75 @ \$16.25 for Gray Forge. Slightly lower figures have been named on some brands, but on standard makes holders show great firmness, and absolutely refuse business unless on their regular terms. Special brands, as usual, command 50¢ @ \$1 pre-

Foreign Iron .- Prices are higher all round, but there is no demand except for Steel Blooms. Bessemer Pig is now quoted at \$19 @ \$19.50, and 20 % Spiegel at \$25.50. with no transactions since last week.

Blooms.-Foreign Bessemer Blooms for Rail purposes are now quoted at \$25.50, c.i.f. duty paid, but there is little chance of business at over \$24.50; Slabs for Nail Plate. \$27.50 @ \$28.50; Sheet-Iron Billets, \$29 @ Sleigh Shoe, 2.27 (c) 2.57, Open Short Sho Run-out Anthracite, \$43 @ \$44; Scrap Blooms, \$34 @ \$35, and Ore Blooms, \$34 @

> Muck Bars .- Prices are firmer and at least 50¢ ? ton dearer than they were a week ago. Sales have been made at \$28.25 @ \$28.50 at mill, and \$28.50 @ \$29 is now generally asked for a good quality of Bar.

Bar Iron .- There is a firmer feeling all around, and the general tendency is toward higher prices. The demand for Bars is not specially large, but the mills are so full of work on specialties that they have not much difficulty in running full, and as the Bar trade has been very unremunerative they naturally desire better prices, and particu larly so in view of the increased cost of production. Some quote 1.9¢, but the range is from 1.8¢ upward, the average probably about 1.85¢, although they all talk higher prices, and it is not unlikely that some agreement will soon be made for a general advance to at least 1.9\$. Skelp Iron is still in demand, with bids of 1.8¢ @ 1.821/2¢ for large lots of Grooved and 2.10# @ 2.121/2# for Sheared, against 1.85¢ @ 1.90 and 2.15¢ @ 2.20¢ asked.

Plate and Tank Iron. - There is a very firm feeling in Plates, although new business is a general opinion that as the season ad- portant.

Leaf Spring Steel.-There has been vances somewhat higher figures will be realized on almost all descriptions of Finished Iron. Meanwhile quotations are about as follows: Ordinary Plate, 2.05¢ @ 2.1¢, delivered; Tank, 2.1¢ @ 2.2¢; Shell, 2.5¢; Flange, 3.5¢; Fire-Box, 4.25¢; Steel Plates, Shell, 3.25¢; Flange, 3.5¢; Fire-Box, 41/2¢

Structural Iron.-A good average business is reported, but the strength of the market is in the large amount of work that is under contract for delivery during the balance of the year. In meeting this demand the mills are nearly all busy, so that the absence of new orders for a few days or weeks makes no material difference. Prices are firm at about the following quotations 2¢ @ 2.1¢, delivered, for Angles; 2.15¢ @ 2.25¢ for Bridge Plate; 2.5¢ @ 2.6‡ for Tees, and 3¢ for Beams and Channels.

Sheet Iron.—There is not as much doing n Sheet Iron as was expected, and the feeling among manufacturers is one of disappointment. Prices are firm, however, and may be quoted about as follows:

Best Refined, Nos. 26, 27 and 28	3940
Best Refined, Nos. 18 to 25	31/69
Common, 14¢ less than the above.	
Best Bloom Sheets, Nos. 26 to 28 434 @	5 \$
Best Bloom Sheets, Nos. 22 to 25414 @	4360
Best Bloom Sheets, Nos. 16 to 21	4 9
Blue Annealed	2.754
Best Bloom, Galvanized, discount	.00 %

Steel Rails.-There is more inquiry for Rails, particularly from the West, and no difficulty in securing large orders at about \$34.50 at mill. The better feeling in foreign markets is reflected on this side, and buyers than they did a week or two ago. Prices but it was a special lot of a bester quality

Old Rails. - The market is hard to quote with exactness. There are buyers at \$21, tons sold at that figure, ex-ship, about due, Sellers quote \$22 in store for T's and \$22.50 anything at much over \$21, f.o.b. The offerings are small, while the demand appears to be quite active for good American

Scrap Iron .- Demand active, with free sales at about the following figures: No. 1 Wrought Scrap, \$18.50; Selected do., \$20 @ \$21; No. 2 do., \$13 @ \$14 Turnings, \$14 @ \$14.50; Old Car Wheels, \$15 @ \$16; Old Steel Rails, \$20 @ \$21; Fish Plates in demand at \$24 @ \$25; Cast Scrap, \$14 @ \$15; do. Turnings, \$10 @

Wrought-Iron Pipe.-The market is in a healthy condition and the demand very brisk. There is a scarcity of small sizes, caused by mills devoting their attention to large sizes, for which the demand at present is very strong. Prices are stiff, with plenty of business in sight, mills have all they can handle. Discounts as follows: Lap-Welded Black, 55 %; Butt-Welded Black, 421/2 %; Butt-Welded Galvanized, 321/2 %; Lap-Welded Galvanized, 371/2 %; Boiler Tubes,

Nalls.-There has been no perceptible increase in business during the past week, but there is some difference of opinion as regards the future. Notwithstanding the exceeding dullness prices remain firm, but if business does not improve soon lower prices are more than probable. For the present we quote \$2.20 from store.

John L. Hogan, 216 South Fourth street, Philadelphia, has been appointed Eastern agent for the sale of Sheet Iron and Steel made by the Falcon Iron and Nail Company. of Niles, Ohio.

#### Pittsburgh.

Office of The Iron Age, 77 Fourth Avenue, Pritabungh, Pa., September 7, 1886.

There has been no change in the general business situation since our last report; in some respects it is encouraging, while in others it is not. The Sable Iron Works, owned by Zug & Co., were partially destroyed by fire on Saturday evening last. Loss estimated at \$60,000, which is fully covered by The portions destroyed were insurance. the Muck rolls, Bar mill and some 10-inch Muck rolls. While we are not advised in will at once be placed in running order again. It was working full at the time of the accident. The Nail factory was not injured; the latter has not been running for about 15 months. The railroads centering here continue to have about all they can do -more if they had the rolling stock which some of them have contracted for on a large scale recently. It is stated that all the car-building shops of the Penn-sylvania Company are being worked up It is stated that the West and South as regards business are generally of a most favorable character. Orders for nearly all kinds of manufactured goods are coming forward freely, and the outlook at present warrants the prediction that this will continue to be the case for some time to come. River navigation has has not been very plenty during the past been suspended by low water for several week or two. The mills have a great deal weeks, and according to present indications of work on hand, however, and are there- it is not likely to be resumed soon. There fore firm in the demand for higher, or at was a time years ago when the suspension least full, quotations on anything they are of river navigation was a serious matter to

Pig Iron.—There has been a lull the past week, but this is easily explained. For several weeks preceding consumers generally bought pretty liberally, and having stocks sufficient to run them from one to three months, and with but little prospect of any immediate advance, it is not surprising that there has been a falling off in demand. It is also worthy of mention in this connection that as many of the furnaces' are sold ahead the offerings to sell have also fallen off, and, notwithstanding trade is dull just now as compared with what it was a few weeks ago, the tone of the market, if anything, is firmer. Some furnaces are refusing to take any additional contracts at present prices. The offerings of Southern Iron have fallen off considerably, the effect of which has been to stiffen sellers, some of whom have hopes of realizing better prices before long; it is probable a better market for Southern Iron has been found elsewhere.

we quote prices as follow	8:
Gray Forge Neutral	15.50 @ \$16.00, 4 mos.
White and Mottled	14.50 @ 15.00, 4 "
All-Ore Mill	16.50 @ 17.00.4 **
	18.00 @ 18.50, 4 4
No. 2 Foundry	17.00 @ 17.50, 4 **
No. 3 Foundry	16.25 @ 16.50, 4 "
Charcoal Foundry	20,00 @ 28.00, 4 **
Cold-Blast Charcoal	24.00 @ 27.00, 4 "
Bessemer Iron	18.00 @ 18.25, 4 "
mi i i	0 11

There have been no sales of Bessemer now reported for over a week; the last sales reported were at \$17.50 @ \$17.75, cash; it is said that there are now but few sellers at have brought out a vigorous demand for the inside quotations.

Muck Bar.-There is a fair business, but no improvement in prices, which we continue to quote at \$27 @ \$27.50, cash. show more disposition to close contracts We are advised of a sale at \$27.75, cash, range from \$34 to \$35 at mill, according to quality, date of delivery, &c. than ordinary. Some of the mills are asking \$28, cash, but they are making no sales.

Manufactured Iron .- The activity noted for some time past continues; mills as a Philadelphia, for good-sized lots; one of 500 rule are busy, some of them working up to their full capacity, and the indications are that this will continue to be the case for for Bull Heads, but buyers do not respond to some time to come. There is a very fair demand for all kinds of Merchant Iron, the best quality of which is quoted on a basis of 1 65¢ @ 1.70¢ for Merchant Bars, 60 days, % off for cash; Old Rail Iron, 18 @ 18 # Skelp Iron is firmer, and some sellers claim to have realized an advance within the past week or two, while consumers allege that they are still able to buy at former prices. One mill is reported to have completed recently a contract for 4000 tons of Skelp Iron, and all those making it are very busy and upable to take all the business that is offered.

Nails .- Prices are still quoted at \$1.90, 60 days, 2 % off for cash, in carlots and upward. for Iron Nails, and 10¢ @ 15¢ W keg additional for Steel. There is very little doing here aside from local trade; large buyers West and South aver that they are able to do better elsewhere, and as they are not buying here there is reason to believe that what they aver is correct. The factories here in Pittsburgh are all stopped; manufacturers say there is little or no margin at prices quoted, and that rather than make any conessions they will let their factories stand

Wrought-Iron Pipe. -The activity noted for several months past continues, and it looks very much as if this would be the case until the close of the present This has been the most active year year. the Pipe manufacturers ever had, and there is no good reason apparent at present why next year should not be as good, if not better. Some people conthe oil traffic and the general merchant trade. Prices firm, but unchanged. Discount on Black Butt-Welded Pipe, in carlots and upward, 45 %; Galvanized do., 35 %; Black Lap-Welded, 571/4 %; Galvanized do., 40 \$; Oil Well Tubing, 52 1/2 \$; 2-inch oil Well Tubing, 14 \$ \$\text{R}\$ foot, net; 5\text{\$\frac{1}{2}\$-inch ing the past week. Sales agents show great

Steel. - This important interest continues much the same as noted for some time past ; mills are pretty generally busy, but there is continued complaint in regard to prices. Standard brands of Refined Cast Steel, 8¢ @ of : Crucible Machinery, 31/4 @ 4¢; Open-Hearth do., 21/2 @ 21/4; Bessemer Billets regard to the matter, we presume the mill and Blooms still quoted at \$30 @ \$31; sale of 8 inch Square Billets at \$30. advised of a sale of 12.0 tons Steel Plates. but did not learn the price. Nail Slabs still quoted at \$29 @ \$30. No sales of Crop Ends or Bloom Ends reported for some time, in the absence of which we omit quotations.

Old Rails-The market continues in an nsettled condition, and in the absence of sales it is difficult to give reliable quotations. Brokers generally say that they can get no offers to sell delivered here, under \$23 @ to their full capacity, and will be for a \$23.50, and buyers are refusing to pay the year or more to come. The reports from prices asked. Some lots on the market would cost \$24. delivered in Pittsburgh. Old Steel Rails may be quoted at \$22.50 @ \$23 for Long Lengths, and they are scarce. expected that they will be a good deal more plenty in a few years from now.

Steel Rails .- Heavy Sections are still quoted at \$36 @ \$36.50, cash, at mill. Mills here and elsewhere are sold for two to three months ahead, and it is very difficult to On Southern No 1 Foundry we quote \$17.50 place orders for immediate or near-by delivery in consequence. Some are sold up until the close of the year.

Railway Track Supplies .- Prices re-

Splice Bars, 1.65¢ @ 1.75¢; Track Bolts, 2.75¢ with Square and 2.85¢ @ 3¢ with Hexagon Nuts.

Old Material .- There is a fair business, and prices are steady as quoted: No. I Wrought Scrap, \$18 @ \$19, net ton: Wrought Turnings, \$14 @ \$15; Old Car Axles, \$23 (a) \$24; Cast Borings, \$12 @ \$13. gross ton ; Cast Scrap, \$14 @ \$15 ; Old Car Wheels, \$16.50 @ \$17; Open-Hearth Steel, mixed lots, \$19 @ \$20, gross ton.

#### Chicago.

Office of The Iron Age, 36 and 38 Clark St., 4 or. Lake St., Chicago, September 6, 1886.

The favorable conditions of trade continue to multiply as the season advances. Jobbers of all lines are now fairly started on sales and shipments for fall and winter goods, The fireleveek of the month was quite satisfactory, and indicates that their full capacity will be reached. While prices are ruling steady, there are many complaints that they are profitless on some lines and too low on all The earthquakes in the South were the only retarding incidents for the week, but too far removed from our market to affect trade except in sympathy.

Hardware.-The first days of September seasonable lines of Hardware. Shelf Goods, Window Glass, Light Tools, Cutlery, Tin Plate and Stamped Ware are in better request, while there was no decline in the demand for special fall and winter lines. More shopping is reported on the part of buyers, who come to the city to place orders largely on account of the firm prices that have been established in trade. Jobbers deviate from price lists less than at any time during this year, and manufacturers are decidedly firm on wholesale figures, but no changes of importance are announced.

Barb Wire .- There is very little demand for Fence Wire. The same conditions govern the market that have characterized it for weeks past, and it does not seem that there will be any change in the situation that will effect fall trade. In small lots from store jobbers continue the quotation of 31/4 for Painted and 4¢ for Galvanized. Carload lots are quoted at 3¢ for Painted and 334¢ for Galvanized by makers and jobbers, though not maintained by brokers, who have no scruples in cutting prices to make sales. There has been no further action taken on the part of the Plain-Wire drawers regarding prices, and it is not likely that anything they could do would remedy the present weak and irregular market. During the week there was perhaps a little better trade in large lots, which brought out plenty of sellers at the best price obtainable. The quotation last week, 31/4, as makers' price for Galvanized Wire should have been 31/4.

Nails.-Quotations from store have been reduced to \$2.05 for Iron and \$2.15 for Steel Nails in small lots by nearly all the jobbers. This action meets with considerable disapprobation on the part of some of the leading bouses, because it is the result of undue rivalry between local factions. Manufacturers con tinue to quote Iron Nails at \$1.95 @ \$2 and Steel Nails at \$2.05 @ \$2.10, Chicago delivery, but so far as known their price is uniformly \$1.85 at mill, the difference in price at point of delivery being an advantage gained in freight rates. Trade in small quantities is a little heavier than a week ago, while tend that the natural gas traffic, which it has fallen off slightly in carloads. Stocks in is the great consumer of Pipe, is as the hands of jobbers are in fairly good shape. yet in its infancy, in addition to which is Mills in this vicinity report that they have all the orders booked that they can deliver in the next 30 days, and make no sales at figures less than those named.

American Pig Iron.-A quiet market, Casing, 45 %, net; 8-inch Drive-Pipe, \$1.30. | confidence in the situation, and buyers there fore are a little more active in closing options ned several weeks ago fairly good for lots ranging from 100 to 500 tons, and on choice brands sales have been made at carload prices. There appears to be more disposition to buy Charcoal Irons in large lots than any of the other grades. Foundrymen are taking their Iron largely in carloads, for which they pay full market A number of large buyers who have been holding off for the past 30 days closed contracts last week upon the belief that current prices are the bottom figures that will be touched in the next three months. All standard brands of Charcoal Iron are well under contract, which makes the carload price \$19.50 @ \$20, four months, a regular figure for the majority of buyers. Coke Irons continue in steady demand at \$19 @ \$19.50. In this grade of Iron fewer large lots were sold during the week, but more shipments made of carloads. Ohio Blackband Irons have been advanced on the lower grades about 25¢ 7 ton on prices named about the first of last month. Dealers claim that there are no Irons of this class that can be bought much under \$19, while the best brands are held at \$20.50. Cheap grades of Ohio Softeners have been in very good request to supplement brands of Southern Iron that can not now be obtained at a satisfactory price No. 2, \$16.50 @ \$17, and No. 3, \$15.75, cash. At these figures sales of small lots have been made, but the price does not meet the views of Southern furnacemen, who claim that main unchanged. Spikes, 2.40¢, 30 days; they get better figures elsewhere. It is also

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claimed that stock in makers' hands is light. Buyers, on the contrary, say they can get all the Iron they want if they would pay prices demanded. The demand for Southern Charcoal here is naturally light, but at the present time the Iron has totally disappeared from this market.

Merchant Steel .- Business by jobbers is reported very fair. Railroads are buying more heavily than customary at this season, and particularly so in cheap Steels. Tool Steels are in good demand for Machinery trade, and purchases by merchants ere on a larger scale. Prices continue very irregular and weak on the whole market. Lowgrade Tool Steels are quoted at 7¢; Standard brands, 71/2 @ 81/4; Crucible Machinery, Round and Flat, 434 @ 51/20; Spring Steels, railroad sizes, 4¢; Open-Hearth and Bessemer Steels, 21/2 @ 3 : Plow Steels, 41/2 @ 5 . On Plow Steels mills are reported to be full of work, and prices firm.

Steel Rails .- Mills report that they can not take any more orders for fall delivery, and are working up to their full capacity Prices remain unchanged and serve as an asking price for next year's delivery. There is considerable agitation among buyers of Rails for next year's delivery over the prospect of having to pay more for Rails than has been demanded this season. Upon the other hand several mills are striving to get orders at present prices, and a number of small contracts are reported for the week.

Structural Iron .- All mills and foundries engaged in making structural shapes are reported full of work. Contractors complain that they have great difficulty in get ting material delive: ed on time, and find it almost impossible to place additional new orders. The demand for Beams and Channels from yard holds on very well. Estimates on cost of several new bridges have been asked for by railroad companies entering here who contemplate having the work done during the coming winter. We continue prices as follows: Beams and Channels, combination price, 3.10¢; store price, 3.50¢; Angle Iron, 2.40¢; T Iron, 3¢ Flitch Plates, 21/4 @ 21/4.

Bar Iron .- The market for Best Refined New Puddled Iron has been quite active during the week and prices well maintained Jobbers continue the quotation of 1.85¢ @ 1.90¢ in small lots from store, and 1.70¢ @ 1.75¢ from mill. Makers of Common Iron are in rather uncomfortable circumstances. They are striving hard to get better figures, but consumers, rather than pay the advanced price, place their orders with manufacturers of Best Refined grades. Mills are quoting Common Iron at 1 60¢ @ 1.65¢ rates, but at the same time claim that they cannot make Iron at the present cost of Old Rails and sell at these figures. From store jobbers quote this class of Iron at 1.65¢ @ 1.70¢ in carlots, and 1.75¢ in small lots. All jobbers are having fairly good trade from large consumers. Country merchants, anticipating higher prices, are buying more liberally, but greatly object to paying the \$1 @ \$2 % ton advance asked for the better grades of Common Iron.

Black Sheets .- There has been quite an increase in the demand for Sheet Iron. Small trade from country jobbers and merchants is much better and prices more readily obtained. Jobbers quote from store No. 24, 3¢; Nos. 25 and 26, 3.10¢; No. 27, 3.20¢, the price now being the same as is demanded for the best quality of Iron. The reason for jobbers having advanced their price so suddenly seems to be an unanswerable question. In view of the fact that makers are unable to get better figures from the jobbers, it appears to be part of the jobbers' duty to sell Sheet Iron at extremely low figures preceding the placing of their orders with manufacturers-that is, in sense bear the market until their purchase is made. Having contracted for the amount of stock they desire, the selling price is immediately shoved up to a profitable point. time, and shows great disparagement in the retail figures between the different grades of Iron, and may be misleading to the buyer. There is no doubt but what jobbers have been quoting the lower grades of Sheet Iron during July at about cost price in has just completed something of which the large lots, which apparently made a wide management has some reason to be proud, difference in the price of Low-Grade and namely, the water works at Talladega, this 175 tons was sold Saturday. Best Refined Irons.

Galvanized Iron.-Trade for the week in Galvanized Iron was very good, and hydrants, including the engines. This is quite a number of orders have been accepted for delivery during this month by sales agents. Stocks are reported in good condition and mills well employed. Jobbers continue to quote 60 and 5 % off on Juniata and 60, 10 and 5 % off on Charcoal Iron Pipe concern, and not the least of its from store. It is rumored that several of the manufacturers have advanced their prices and refuse to duplicate orders at former prices.

Old Rails-Continue to be the strongest article on the whole list of Iron products. It is almost impossible to buy Rails in any quantity at the present time, as holders have an idea that they will advance to figures them Iron. They will be built by the side considerably above the present high range. We hear of several lots having been bought during the past week at \$21.50. Mills have advanced their quotation to \$21.50 @ \$22, Chicago delivery, but sellers are exceptional at this price. All those who have Rails are asking \$25, and from past experience it is probable that they will not sell at any price winter. The footings of this summer's

for some weeks. Steel Rails, full lengths, business will show a remarkable growth in

Old Wheels .- There has been a fairly good demand recently, and prices range refused. Round lots could be had at the same price, but foundrymen refuse to meet the figures. At 50¢ less than prices named a large quantity of Old Wheels would be consumed. These prices are likely to remain pretty steady unless there be some advance on the low grades of Pig, which at the moment is improbable.

Scrap Iron.—Dealers are quoting No. Wrought Scrap, \$17.50 @ \$18; No. 1 Mill, \$14.50; No. 2, \$9.50; Machinery Cast Scrap, \$14; Stove Plate, \$13, net ton. The latter grades of Scrap are in fair demand, but prices usually higher than they wish to pay. There has been considerable improvement in the inquiry for the best grades of Wrought, which makes dealers rather firm in prices asked.

Pig Lead .- There has been some imrovement noticeable in the demand for Pig Lead, values ranging from 4 60¢ to 4.65¢. Sales of some 600 tons are reported. Buyers are very conservative, and while prospects are fair they will not anticipate their requirements, preferring to take chances on the future market

#### Birmingham.

BIRMINGHAM, ALA., September 6, 1886. The general business prospects of this city and the country immediately tributary to it are intimately associated with the interesting railroad strategy that the newspapers are investigating affecting the Georgia Central system. If the present management of that system has really been undermined by outside interests its future connection at Birmingham undoubtedly was one of the chief considerations. It would seem that in any event the building of the Central's Goodwater branch into Birmingham as projected with a view to meeting the Kansas City Road—or, anyhow, without any material departure from this original project—is a certainty. The Louisville and Nashville system would need the road to hold the east-bound Pig-Iron business that the Central has been getting from the Georgia Pacific. The latest report here is that Gould has got the Central, and he would need to build not merely to Birmingham, but on to Memphis, in order to flank his strong competitor from Kansas City. If the Central is really lost to them as an ally the situation will compel the Kansas City Company to build an extension to the Atlantic Coast, and if it is really Gould they have to fight he will almost as certainly parallel them from here to Memphis as he is already doing beyond the Mississippi. To thinking men these promises of immensely better transportation facilities for Birmingham are conclusive, and the business of the place does not fail to respond to them. The indications are that in the immediate future Birmingham will advance in merchandising almost as rapidly as she has advanced in an industrial way for several years. Actual business in the aggregate keeps ahead of the best that was ever done before, winter or summer.

Pig 1ren-Can hardly be had in any quantities anywhere in this district for delivery this month. The active demand. especially from the West, keeps stocks down to very low figures, and sales a little ahead of output. A few sales have been made in the last few days, mainly at considerably better prices than governed a month ago. Two hundred tons sold at an advance of \$1, while on as much as 1000 tons 75¢ advance was realized.

Finished Iron.-In this line, so far as prices are concerned, what improvement is noticeable so far hardly deserves to be called more than a tendency. From the present owever, it would seem that que must be higher before very long.

Miscellaneous .- The shops and foundries and small manufactories generally report an uneventful, but satisfactory, run of State, which have been put in satisfactory operation. The Birmingham Works made everything belonging to them except the said to be the first job of the kind ever done by a Southern concern. Of all the new enterprises Birmingham has secured recently, one that was announced a few days ago is it ome respects the most desirable. It is a large gratifying particulars is the fact that the projectors are Pittsburgh men who have been engaged in the same line on a large scale. The works are designed to use 200 tons of Iron a day, and if they do this they can a little more than take the whole product of the two furnaces of the Woodward Iron Company, which has contracted to furnish of these furnaces, and the Iron, when up to grade, will be run immediately from the stacks into the Pipe molds. With a view to the time when this cannot be done two large

Coal and Coke-Are still as active com modities as they have been heretofore in

are quoted at \$20 @ \$20.50; mixed lengths, the last year. The prospect for increased Coke making constantly expands. A very large increase of a large extension now under way is contemplated by one concern, and from \$15.50 to \$16, cash. Some sales have some interesting experiments are being made at the lower figure, and \$16 bid and made on the part of other operators with a view to coking new Coals.

#### Cincinnati.

CINCINNATI, September 6, 1886. The Thirteenth Cincinnati Industrial Exposition was inaugurated Wednesday, the 1st inst., by a military pageant and an industrial display, the entire parade being furnished with many and attractive features suggestive of the reward of labor and of merit. The day was observed as a general holiday by the city, and our country cousins were out in force. The resumption of the expositions will form another and an interesting chapter in the history of the city. The present opening is made under auspicious circumstances, from which the local business community draw great expectations of an extension of our trade as well as a recovery of the ground lost during the depression of the last two years, in which the country at large shared and suffered. The various manufactures into which Iron enters as an important factor are deeply interested in the outcome, and the distributors of Pig Metal as well as the dealers in the manu factured product are alive to the needs and wants of the hour. It is an instance where the interests of all are the same.

Pig Iron.-The active buying movement which has been in progress for the past two months appears now to have culminated about two weeks ago, but the volume of business since that time has been fair, comparing well with corresponding weeks of 1885, and will doubtless prove good weeks in the average for the year. The fact that a lull has been experienced during the past two weeks has given rise to misgivings in the minds of some in the trade that the recent movement may prove to have lacked the elements of stability; that it was merely a spurt. Of course it cannot be definitely stated now that such is or is not the case. If the Iron trade were alone in the recent improvement the foundation for the belief in only a temporary improvement would be good, but an average observer can scarcely fail to note that the recuperation which has been in progress throughout the country has embraced all the most important branches of trade and industry, not excepting the transportation lines, the latter of which in a measure corroborates the statements respecting the former. Of course he who expects a steady rise or a continued expansion will be disappointed. High pressure cannot be maintained with impunity. We are inclined, therefore, to look upon the present lull as a natural and healthful reaction. Yet, while the past week has been comparatively quiet, there have been several sales of magnitude accomplished. The Southern furnaces have continued to maintein a strong tone, and as a rule, being well sold ahead, have taken few new orders; a number of carload lots, however, have been sold on a basis of \$16 for No. 2, and an exceptional sale is reported based upon \$16.50 for No. 2. One lot of 600 tons of Southern Coke Iron has been placed also. One of the largest and representative furnaces in Alabama has not only booked orders which will keep it busy up to the first of the year, but has accepted contracts for over 1000 tons for delivery during the next four months, more than its capacity will allow in that time. It is not strange, then, that these furnaces should refuse to listen to the importunities of buyers for the present. The policy of the Southern furnaces, as it is conceived here, is to make no new contracts until those now in force are settled; nothing is likely to be lost by waiting, while much may be gained. Deliveries upon old contracts are being made rapidly, and daily volume of business and the tone of inquiries, calls are made by consumers. There have Ohio and Pennsylvania Coke Foundry Iron sold during the week, one lot going to Indiana, one Northwest and one Northeast. Sales of 100 to 200 tons of the same kind of work. One, the Birmingham Iron Works, Iron have not been infrequent, and a unless at full quotations. The general com-Iron have been placed; one lot of Charcoal Iron has continued scarce and strong. As a rule the Ohio and Pennsylvania furnaces show no hesitancy about accepting

orders for either present or future delivery on the present basis of prices, but for the best makes a firm tone prevails at the now ruling rates. An occasional concession is reported on grades not recognized as standard. Bessemer Metal has been held a little more firmly under an advance of 25¢ & ton in the price of Lake Ore; the stronger tone has restricted the movement. We quote for cash, f.o.b. cars at Cincinnati, as,	Iron Company, of Tennessee, demand for mill grades, and the consumption from 25 to day. From the present outloo cause whatever for Iron to weabut feel assured that should thange it would be an upwar The following quotations are fir to:  Charcoal Foundry.
follows:	Hanging Rock, No. 1
Charcoal Foundry.  Charcoal Foundry.  \$19.00 @ \$21.00  Hanging Rock, No. 1	Southern, No. 1. Southern, No. 2. Southern Mill. Coke.
Coal and Coke Foundry.  Ohio Soft Stonecoal, No. 1	Hanging Rock, No. 1. Hanging Rock, No. 2. Ohio Softeners, No. 1. Ohio Softeners, No. 1. Hanging Rock Softeners, No. 1. Hanging Rock Softeners, No. 2. Southern, No. 1.
No. 1	Southern, No. 2 Southern, No. 2)4 Southern No. 1, Forge
Forge   14.00 @ 15.00   Mottled   18.00 @ 18.50   18.00 @ 18.50   Southern Coke, Cold Short   18.30 @ 14.00	Wheel Irons. Hanging Rock, Cold Blast Hanging Rock, Warm Blast

Car-Wheel and Malleable Irons. 90,00 @ 23,00 26 00 @ 27,00 20,00 @ 21,50 22,00 @ 23 60 Southern Car-Wheel... Hanging Rock, Cold Blast Hanging Rock, Warm Blas Lake Superior and Mallead

Bar and Sheet Iron.-There has been no lull in the demand for Manufactured Bar and Sheet Iron, and a firm tone has continued to characterize the market. The deliveries upon former contracts increase the apparent movement. Common Bar Iron, 1.65¢ @ 1.75¢; Charcoal Bar Iron, 2.65¢ @ 2.75¢; Sheet Iron, Boiled, Nos. 10 to 27, 21/4 @ 3#; Sheet Iron, Charcoal, Nos. 15 to 25, 21/2 @

Old Rails .- The inquiry for Old Rails has been wide and extensive, but the appreciated values which holders have recently set upon them by reason of their scarcity have doomed them to inactivity. Buyers hid \$21.50, and might possibly give \$22 in Cincinnati, while holders ask 50¢ @ \$1 more ton. The strength of the holders of Rails s throwing consumption upon Pig. Old Wheels have remained quiet and easy at previous prices.

Scrap.-For Rails we quote \$21.50 @ \$22.50, and for Wheels \$15.50 @ \$16.

#### Cleveland.

SEPTEMBER 6, 1886. Pig Iron.—Charcoal Iron has been strengthened by advancing lake freights. Dealers will not duplicate old orders unless the increased carrying rate for Ore is included. The amount of business being done is large. The foundries seem to be well occupied, and several report that orders for delivery at neighboring points have been refused. The contemplated advance in prices seems to be delayed by the fact that there is no visible limit to the supply. Furnacemen are inclined to demand full market rates for Iron or cease to manufacture. Transactions have consisted principally of so and 100 ton lots, although one or two transactions of 400 or 500 tons are reported. Local quotations are: Foundry No. 1, Lake Ores, with Cinder Mixture, \$17.50 @ \$18; No. 1 Strong Foundry, Bessemer quality, \$18.70 @ \$19.50; No. 1 Strong Foundry, \$17.50 @ \$18.50; No. 2, Strong Foundry, \$16.50 @ \$17.50.

Iron Ore .- Lake freights continue upward. Although \$1.25 from Escanaba, \$1.50 from Marquette and \$1.60 from Ashland is the present rate, vessel men predict a 50¢ advance all around within six weeks. Fur-nacemen are not uneasy. Some of their and the Exposition are serving to bring number assert that only Scrap lots of Ore remain to be purchased. Every one admits, remain to be purchased. Every one admits, however, that the tendency of the market is toward increased firmness. Dealers claim that a considerable quantity of good Ore is still in the market. There were 18,400 tons received at Cleveland last week, exclusive of 16,500 tons forwarded. For No. 1 Specular and Magnetic Ores \$6.25 % ton is asked; for Non-Bessemers \$5.50; Bessemer Hematites are held at \$4.75 @ \$5.50 and Non-Bessemer Hematites at \$4 @ \$4.50. Buyers have not consented to the advance of 25¢ P ton for Gogebic Ores. The market is animated and gives indications of some lively changes during the month.

Old Rails.—The demand is still far in excess of the apparent supply. Buyers offer \$23.50 \$2 ton, but it seems probable that \$24 would have to be paid for any considerable quantity.

Old Wheels .- All the Old Wheels that can be found could be disposed of at \$17. The demand is brisk.

Messrs. Howell & Thornton, Room 29 Wilshire Building, Cleveland, have established themselves as brokers in Iron, Nails, Spikes, Steel and Metal generally.

#### Lcuisville.

LOUISVILLE, SEPTEMBER, 6, 1886. Pig Iron.—There has been very little change in the market since our last report, tracts are being made rapidly, and daily change in the market since our last report, to feel that a large, steady business on a nearly uniform basis of prices is better than been three different lots of 1000 tons each of remain about the same, the demand being fluctuations of trade. Demand runs mostly mostly for small lots, with some inquiry for to Ohio and Southern Irons. The latter con round lots running through the balance of tinue scarce at the advance price already noted. The tendency of the leading furthe year, but the furnaces as a general rule noted. decline to book orders for forward delivery rather than Foundry grades. Some Alanumber of small orders for Coke Forge mercial trade is good, and the indications or four months behind contract deliveries Iron have been placed; one lot of point to a good fall business. Some of our on Foundry orders. The car shops are full ing. The starting up of the Old Kentucky Rolling Mill, lately purchased by the Ewald is to be let within the next few days. The outlook, taken as a whole, in all branches Iron Company, of Tennessee, will cause a demand for mill grades, and will increase the consumption from 25 to 40 tons per day. From the present outlook we see no cause whatever for Iron to weaken in price, but feel assured that should there be any change it would be an upward tendency. The following quotations are firmly adhered Charcoal Foundry.

Hanging Rock, No. 1. \$21.00 @ \$22.00 Hanging Rock, No. 2. 18.50 @ 30.00 Southern, No. 1. 17.50 @ 10.00 Southern, No. 2. 18.50 @ 17.50 Southern, No. 2. 18.50 @ 17.50 @ 10.00 Hanging Rock, No. 18.50 @ 17.50 @ 10.00 Hanging Rock, No. 2. 18.50 White Rock, No. 2. 18

õ	Southern Mill	15.50 @	10.00
ő	Coke,		
-	Hanging Rock, No. 1	17,00 @	18,00
0	Hanging Rock, No. 2	16.00 @	17.00
	Ohio Softeners, No. 1	18.00 @	20.50
0 0	Ohio Softenera, No. 8	17.00 @	19.50
ő	Hanging Rock Softeners, No. 1	16.50 @	17,00
ő	Hanging Rock Softeners, No 2	15.50	16.00
	Nouthern, No. 1	16.50 @	17.50
0	Southern, No. 2	15,50 @	16.00
~	Southern, No. 2)4	15.00 @	15.50
0	Southern No. 1, Forge	14.00 @	14.50
-	Southern No. 2, Forge	18.50 @	14.00
0	Wheel Irons.		
~	Warmer Dank Claid Blank	04.00 @	SEE ON

Red River, Cold Blast. outhern, Cold Blast ... outhern, Warm Blast .

Pig Iron.-The market for Pig Iron continues with the same firm tone noted last week, with a satisfactory volume of sales, but no unusual activity. A large number of the furnaces are still out of the market on all of their grades, but the grades for which they are in the market are sufficient to supply the demand. At the present time there is no indication of a change in price either way. The best brands are the most thoroughly sold up. Our quotations represent the difference between prices of the best and poorest brands. We quote for cash in round lots as below :

TOTAL			
Southern Coke, No. 1 Foundry	\$16.50 @ 15.50 @	\$17.50 16.50	
No. 216 "	14.50 @	16.00	
Hanging Rock Coke, No. 1 Foun-			
dry	17.00 @	18.00	
Hanging Rock Charcoal, No. 1	211.00	40000	
Foundry	19.00 @	21.00	
Southern Charcoal, No. 1 Foundry	17.00 Ch	19.00	
Silver Gray, different grades	14.00 @	15.50	
Southern Coke, No. 1 Mill. Neutral	14.50 @	15.50	
" No. 2 " "	18 50 @	14.00	
No. 1 " Cold Short	18.50 @	14.00	
" Charcoal, No. 1 Mill	16.00 @	17.00	
White and Mottled, different grades	12.00 @	13.00	
Southern Car-Wheel, standard	Tierrai (III)	10.00	
brands	23.00 @	24.00	
Southern Car-Wheel, other brands	19.00 @	21.00	
Hanging Rock, Cold-Blast	23,00 G	25.00	
The same of the sa	WASHING REP	A12, UN	

" Warm-Blast ..... 19.00 @ 21.00 Old Material.—The market for Old Material continues quiet, but firm. There is no market for Old Rails above \$20; but very little offering at that price. Most concerns are holding Old Rails at \$21, and some small sales have been made at this price. Old Wheels are scarce, and worth \$14.50 @ \$15. We quote for cash as below :

Rails, W ton	\$20.00 @	\$21.00
wheels, w ton	14.50 @	15.50
No. I Wrought, W 100	.90 @	.95
No. 1 Country Wrought, \$2 100	.70 66	.80
No. 2 Country Wrought. 22 100.	.50 @	.60
No. 1 Cast, W 100	.45 @	.55
Boilers, cut, ₩ 100	.60 @	. 65
Boilers, uncut, \$\mathbb{R}\$ 100	.40 @	.50
Flues, Tanks and Sheets, # 1(0	. 25 @	.85
Axles, ¥ 100	.90 @	1.00

W. B. BELKNAP & Co., Louisville, write as follows, under date of September 6: A steady volume of trade continues its gratifying proportions to the jobbers of Louis-ville. The statistics from the Board of Trade show a healthy increase over last year in the snow a neathy increase over last year in the local movement of the great staples, and the future still seems full of encouragement. Even the earthquake shock, which was a disturbing element for the time being, failed to depreciate any further the prices of Nails and Barb Wire, which may be taken as an indication of how stable a foundation these are resting upon now. Fine weather strangers to the city and go to swell the ordinary business.

ticularly strong.

Nails.—Owing, we take it to the facili-ties for greater production, notwithstanding the heavy demand, there has been no advance in nails, but, if anything, a weakish market The manufacturars are protesting against the state of affairs without being able to mend it. It is claimed that the very low prices prevailing are enabling the Wheeling mills to ship a large part of their product East. Iron Nails are in better pro-portionate demand than a short time ago. City consumers especially are calling for Iron Nails.

Barb Wire—Is jobbing in moderate, though not extraordinary, quantities. Prices are the same that have prevailed for a month or two. It would seem as though any change that occurred must be in the nature

#### St. Louis.

Rogers, Brown & Co., St. Louis, W. H. SHIELDS, manager, report, under date of September 6: The Pig-Iron market has settled down to a uniform tone that is satisfactory and encouraging, but without much inflation. Low prices have the effect to increase consumption, which higher prices would tend to check, and all parties begin bama furnaces are represented to be three manufacturers report that they are quite for fully six months to come. Another busy, and the outlook seems to be encourag-

is very encouraging.		
Charcial Foundry.		
Missouri—None offering, nominally \$17.00 Southern	00	\$18.00 18.00
Coal and Coke Foundry.		
Southern, No. 1       17.00         Southern, No. 2       16.25         Ohio Softeners       17.00	60	18.00 17.00 20.00
Mill Irons.	-	
Missouri		16.50
Car-Wheel and Malleable Irons		
Southern         20,00           Lake Superior         21,00		\$5.00 28.00
Scrap, dc.   16,00	6	16.50 21.00 5.65

The Southern Exposition opened at Louis wille, Ky, on the 28th ult. The day was a general holiday in the city, and large crowds swarmed out to the grounds. The first day in the exhibition was further advanced that is usual, although a number of displays are yet to be set up. The opening of the Exposition marks the beginning of a busy and prosperous season for Louisville. 24.00 & 35.00 and a pleasant and instructive time for vis

# Trade Report.

#### General Hardware.

The first week of the month has given an increasing trade, and the market is characterized by a fair- not heavy, but steadydemand. There is little evidence of a speculative movement, and purchases are in nearly all cases limited to the immediate wants of the trade. Orders from wholesale houses, especially in the West, indicate that stocks are light and in some cases broken, and retailers also are not carrying more goods than they require. Prices show but little variation, being generally decidedly firm, exceptional lines for special reasons being irregular, and in a few cases lower. Merchants are much more frequently called upon to mark goods up than down. Collections are easier than they have been, but are still rather slow. The outlook is on the whole satisfactory, and a good business is

The New York market has been dull during the last week, with a feeling of weak-The demand is light, ness prevailing. buyers holding off awaiting developments. We quote nominally \$2 for Iron Nails in carload lots, from which concessions are We discuss the situation ediobtainable.

A meeting of the Eastern manufacturers is to be held to-morrow.

#### BARB WIRE.

The withdrawal of one of the manufacturers from the Eastern association and the competition of Western works have led to a drop in the New York market, carload lots of Four Point Galvanized Barb Wire being obtainable at 3.90 cents to 4 cents. Some of the Eastern manufacturers are doing a heavier business new than they have ever done thus far at any season of the year, and the decline seems to have brought out buyers generally.

#### MISCELLANEOUS PRICES.

The agreement among the manufacturers of Casters is reported to be working satisfactorily, and the goods are held firmly at the new prices. The market is the more regular at these figures, inasmuch as not many of the large trade were permitted to place orders previous to the advance, thus relieving quotations from the demoralization that manufacturers often promote by the readiness with which they allow jobbers to load them up with heavy orders at the time of an advance

The arrangement between the manufacturers of Augers and Bits is generally reported to be working satisfactorily. manufacturers are said to be adhering closely to prices, and a disposition is manifested to make an advance, if feasible, at an early date. The advance, if made, would be a slight one, and it is not clear whether or not it will be thought best to make it.

The Tack market continues in about the same condition as regards quotations that it has been in for some time, the prices being described by the manufacturers as unremunerative, and recognized by the trade as low. There are, however, reports that some of the large houses, anticipating that these extreme prices will not continue indefinitely, are placing liberal orders for the While there is little or no speculative activity, Tacks are generally regarded as safe purchases.

The following are the prices of the Horse shoe brand of Carpet tacks, which have just been put on the market by the Walkley Hardware Company, Plantsville, Conn. :

Horseshoe Brand, Uniform Weights, Blued . . . 10¢ Horseshoe Brand, Uniform Weights, Tinned . . 14¢ Horseshoe Brand, Double Uniform Weights, oe Brand, Double Uniform Weights,

These goods are put up in uniform 2-ounce and double uniform 4-ounce w boxes with attractive labels. We are advised that for the short time that they have been on the market they have been very favorably received by the trade, some large orders being placed for them from leading houses

Prices of Brass Butts are held with fair firmness at recent figures. The manufacturers of Cast Iron Butts adhere closely to quotations, and the market is firm, although prices are sometimes shaded by houses holding stocks purchased at lower figures.

There is nothing new in Screws, prices remaining substantially as they have been with perhaps a slight tendency toward

Tackle Blocks are badly demoralized, and still lower prices are made. There appears to be a somewhat reckless competition among the makers, unless, indeed, the object be to form in the near future a combination than one barrel an extra charge is made for which will secure satisfactory prices. Of packages. this, however, there are no definite indica-

Machine Bolts and Bolt Ends are, without vantage of by close buyers.

The Lock market is not as firm as the manufacturers would desire, and concessions beyond those that have recently been made are reported, so that to close buyers quotations are a shade lower. Padlocks remain without material modification, prices being low and much below the nominal printed prices.

The recent entrance into the market of new manufacturers of Wire Nails, with those already in the field, helps, from the increased production, to continue the irregularity to which we have before referred. The market is unsettled, and slight additional concessions are made where necessary. A large amount of goods is sold, and the Standard Penny Nails are being turned out in larger quantities, in response to what ms to be a gradually increasing demand.

There is no material change in the prices of Nuts and Washers, slight variations being made from time to time, as the circumstances of the case and the character of the order may call for.

The prices of Copper Rivets and Burrs and other Copper and Brass goods are stronger than they have been, while there is as yet no change in prices that calls for mention. The mills are reported to be very busy, especially on orders for Sheet goods.

The competition between the Chicago jobbers is at present at least as active as usual, and as a result, from some places in the vicinity of that city and not out of reach of St. Louis, we hear of exceptionally low prices being made.

There is no change in the quotations for Cartridges, and prices are as a rule firmly maintained by the contract houses and jobbers. Instances are, however, more or less frequent in which, in a covert way, concessions are given which are not permitted to appear in the invoice. There is, however, not as much of this cutting going on as was anticipated when the present arrangement

The prices of Brass Cocks are maintained with regularity, and there are no intimations that the goods can be obtained from the manufacturers at irregular prices.

The Ireland Mfg. Company, Cincinnati, Ohio, for whom W. H. Jacobus & Co., 90 Chambers street, New York, are agents, withdraw previous quotations on the Morris and Triumph Sash Locks, and announce the following revised price list, which is subject to a discount of 50 and 10 per cent., 60 days, thus making, it will be observed, a material

rec	luction in prices :	
	The Morris Sash Lock.	
No.		Per do
00,	Iron, Plain Japanned	\$1.00
0,	Iron, Plain Japanned	1.18
1.	Iron, Plain Japanned, Brass Tip	1.60
9,	Iron, Piain Japanned, Nickel-Plated	
-	Tip	2,05
8,	Plain Polished Bronze	6,25
4.	Plain Polished Bronze, Nickel-plated	8.75
0434	Iron, Tucker Bronze, small size	
434	iron, Tucker Bronze	1.37
5,	Ornamental Iron, Tucker Bronze, Real	
U	Bronze Drop and Tip	2.30
6,	Ornamental Real Bronze	7.50
7,	Extra Heavy, Plain Polished Bronze,	1,00
0.0	with Burglar-proof Plate	15.00
8,	Same as No. 7, Nickel-Plated	18.75
9,	Ornamental Real Bronze, Dark Inlaid	7.50
	Ornamental Real Bronze, Antique	1.00
10,		7.50
44	Finish. Plain Polished, Real Bronze, Antique	1.00
11,		7.50
10	Finish. Ornamental Real Bronze, Silver-plated	15,00
19,	Plain Polished Iron, Boston Finish	8,50
13,	Extra Heavy, Ornamen'al Real	0,00
14,	Bronze, with Burglar-proof Plate	15.00
	Same as No. 14, Dark Inlaid	15.00
15,	Very Heavy Plain Polished Bronze for	10.00
16,	Very Heavy Plain Folianed bronke for	22.50
400	Extra Heavy Sash	26,25
17,	Same as No. 18, Nickel-plated	20,23
18,	Plain Polished Iron Copper Bronzed,	4 00
	Brass Tips	4.70
19,	Iron, Plain Lacquered	1.10
	The Triumph Sash Lock,	
90.	Plain Iron, Japanned, with Iron Rivet	1.18

	EXTR HOLY CHAM-	20.00
17.	Same as No. 16, Nickel-plated	26,25
18,	Plain Polished Iron Copper Bronzed,	
	Brass Tips	4.70
19,	Iron, Plain Lacquered	1.10
	The Triumph Sash Lock,	
90, 21,	Plain Iron, Japanned, with Iron Rivet Plain Iron, Japanned, with Brass	1.18
	Rivet	1.023
22,	Plain Iron, Japanned, with Nickel- plated Rivet and Drop	2.05
93.	Plain Polished Bronze Metal, with	
	Bronze Rivet and Drop	6.25
D4,	Plain Polished Bronze Metal, Nickel-	
	plated	8.75
2416.	Ornamental Iron, Tucker Bronze,	
	Bronze Metal Rivet and Iron Drop.	1.37
05,	Ornamental Iron, Tucker Bronze,	
	Solid Bronze Rivet and Drop	2.30
26,	Ornamental Solid Bronze Metal, Bronze Rivet and Drop	7.50
29,	Ornamental Solid Bronze Metal, Bronze Rivet and Drop, Dark In-	
	laid, No. 3 Finish	7.50
18,	Plain Polished Iron, Bronze Rivet,	*.00
,	Boston Finish	2.80
10.	Plain Iron, Lacquered, with Iron Rivet	1.1234
0.	Plain Iron, Bronze Ball Rivet, Lac-	
100	quered	1.3734

The following the price list of the Empire Sash Pulleys manufactured by the Empire Portable Forge Company, Cohoes, N. Y., a description of which is given among our Harware Novelties on page 29. The list is subject to a discount of from 55 to 60 per cent., terms 30 days, or 2 per cent. discount for cash in 10 days :

Plain Face, Unground Wheel, 2 inches, in bulk, 62 cents per dozen; in papers, 1 dozen each, 68 cents per dozen.
Plain Face, Polished Wheel, 2 inches, 65 cents per dozen; in papers, 1 dozen each, 71 cents per dozen

lozen onzed and Polished, Face and Wheel, 2 inches in papers of 1 dozen each, 30 cents per dozen. ickel-plated and Polished. Face and Wheel, 3 inches, in papers of 1 dozen each, \$2.25 per dozen. The Pulleys are packed in barrels of about 195 dozen ach and delivered f.o.b. in New York City or Cohoes, N. Y., or Reading, Pa., without charge for cartage or barrels. If ordered in lots of less

The Southwark Scale Company, 51 North Second street, Philadelphia, Pa., issue a sheet containing illustrations and list prices any concerted action of the manufacturers, of their line of Scales. The following are slightly higher, and quotations should be the list prices of their IX L Scales, which advanced. The necessity for revising the they have recently added to their assortlist is referred to, as there is an inequality ment, and which are represented in their in the prices on the present list between the advertisement on page 43. The list as John G. Pendleton retires from their firm. large and small sizes, which is taken ad- given below is subject to a discount of 50 The business will be conducted in the future, per cent :

IX L Counter Scales. Tin Tunnel Brass Brass Funnel
Capacity, Scoop, Scoo

Double Plate Scales. With Two Plates, Scoop and Balance Weight. 

Butchers' Meat Scales. Size of Capacity. Plate. Tin Top. ...16 ibs. 12 x 15 \$12.00 ... 8 ibs. 10 x 12 10.00 ... 4 lbs. 7 x 9 8.00 Top. \$15.00 each 12.00 each 10.00 each

Porcelain Plates furnished at same list Brass Weights for IXL Scales

Capacity. Blbs. to 1/4 or.
Blbs. to 1/4 or.
Blbs. to 1/4 or.
Blbs. to 1/4 or. \$12.00 A set of warranted Iron Weights acceach scale.

#### ITEMS.

The catalogue and circulars issued by the oseph Dixen Crucible Company, Jersey City, N. J., indicate the extensive and varied line of goods of their manufacture. It covers Pencils, Axle Grease, Stove Polish, Graphite Roof and Smoke-stack Paint, Crucibles, Graphite Cylinder and Machine Oil,

Morley Bros., East Saginaw, Mich., issue a convenient pocket pamphlet giving on alternate pages a list of Lumbermen's Supplies, mentioning that they manufacture all their Lumbering Tools and Harnesses. The list given is very complete, covering Building Materials, Axes, Saws, Lumbering Tools and a variety of general supplies, together with Tools for shop, Stable Supplies, Cooking and Table Outfits, &c. The alternate pages are left blank for memoranda as to the quantity wanted, &c.

The announcement of Foundry and Machine Works for sale at Staunton, Va., will be observed among Special Notices on page 18, with particulars which will be of interest to those considering such an invest-

The Ideal Mfg. Company, New Haven, Conn., issue a circular describing the Ideal Reloading Implements, which are manufactured under J. H. Barlow's patents giving revised list prices, together with illustrations and descriptions of the goods.

The Gong Bell Mfg. Company, East Hampton, Conn., issue two catalogues, one describing their varied line of Gong Bells, together with Hand Bells and Call Bells and some styles of Sleigh Bells. The other catalogue is devoted to Bells and Bell Toys, the latter line being intended for the Toy and Fancy Goods trade, and showing a variety of novelties.

The Eagle Machine Company, Lancaster, Ohio, issue a pamphlet describing their Eagle Ensilage and Fodder Cutters, Corn Shellers, Rotary Hand Corn Planters, Horse-Powers, Jacks, Animal Pokes, &c. Of these machines cuts and descriptions are given and their special features described.

Morley Bros., East Saginaw, Mich., issue a notice that they own and control all patents upon the Railroad Stepladder, and have the exclusive right to manufacture and sell the same, and they accordingly warn persons against manufacturing or selling this article without authority from them.

The Bevin Bros. Mfg. Company, East Hampton, Conn., issue a catalogue and price list illustrating the line of Bells which they are manufacturing. Illustrations are given of the different styles, with list prices.

The East Hampton Bell Company, East Hampton, Conn., in their catalogue for the present season illustrate, with list prices, their well-known line of goods. It contains also representations of Team Bells, Shaft Chime Bells and a Dash Plume which are

The St. Louis Corrugated Roofing Co., St. Louis, Mo., issue a unique and striking calendar calling attention to their Roofing, Siding and Ceiling

James Robertson & Co., Baltimore, Md., state that in consequence of the recent fire at their works their removal was necessitated in order to allow of the works being rebuilt, and announce that they have leased the centrally located four-story warehouse 21 South Charles street, which they have ment of Plumbers', Gas and Steam Fitters' Supplies and Tools.

Our readers will observe the advertisement on page 30, in which the Arc Scale Mfg. Company, Davenport, Iowa, illustrate their Arc Scales, a new line of which has recently been put on the market.

The William Rogers Mfg. Company, Hartford, Conn., for whom V. P. Humason is agent, No. 80 Chambers street, New York, issue two catalogues, one devoted to Silver Plated Hollow Ware and the other to Silver Plated Flat Ware. Both catalogues are much little, work can be got into the time, they larger than the last issue, the Hollow Ware are working out their own chance of success catalogue especially, containing, it is said. catalogue especially, containing, it is said, six times the line found in their previous one. Both are handsomely printed and fully illustrated, and will serve the convenience

Announcement is made by W. K. Morrison & Co., Belfast, Me., September I, that The business will be conducted in the future, majority of our young men are running. as in the past, by W. K. Morrison, under the The best preparation for a successful mas-

same firm name. It is also intimated that as Captain Pendleton has never had any interest in the business, except to add financial strength to the concern, his withdrawing this support, which is regarded as no longer necessary, will not affect the capital invested, which is alluded to as ample for all or dinary requirements.

The trade will be interested in the illustration of the Allard Spiral Screw Driver on page 30, where the Alford & Berkele Company, the sole agents, call attention to its special features and give prices on it.

S. A. Haines & Co., 90 Chambers street, New York, have taken the agency of the Keystone Fork Works, Lawson & Brenizer, Philadelphia, on which they are prepared to name the lowest prices for both home and export trade. They have also been appointed sole agents for the sale of a new line of Picks, Mattocks, Grub Hoes, &c., which are made by the Jefford's Axe Company. The quality of the goods and the prices at which they are offered are alluded to, and it genuine Washoe goods as they were originally made.

#### WHAT THE TRADE SAY.

The following extract from a letter of one of our subscribers, while not referring exclusively to Hardware topics, will be of interest as expressing what, we fear, has frequently been the experience of many of our readers :

Trade is looking up somewhat, and cooler days and nights cause people to inquire about Heating Stoves. Dealers are getting their Stoves on their floors. I have been struck with the general lack of good common sense, and judgment among mechanics in doing work outside of their every-day routine. I had a brick mason building the well and cold-sir shute for a portable Furwell and cold-air shute for a portable Fur-nace. The man has been working at his trade 30 years or more. Even after having given him directions as to how each part should be constructed, I had to overlook the laying of each brick, and some work had to be taken down and done over. He seemed to have objections to build to the measurements I gave, and was continually suggest ing some other way of doing the work. This might have been excusable had he been accustomed to that kind of work, but this accustomed to that kind of work, but this was his first job. The remark is quite commonly made by people having work done: "I have got to stand right over this man to have it done as I want it." There is hardly a mechanic but will slight a job when he has a chance. There must be a reason for this—i. e., lack of education in learning the trade, and lack of general knowledge outside his trade. Very few men but will guess at the length of something and then spend twice the time patching the error caused by the carelessness than if it had work. A job of spouting caught my eye where they had run a straight piece of pipe from the outlet to the down spout instead of making an offset with an elbow. A porch built to a new house conducts the water back to the building instead of having the pitch the right way, and so I might go on enumerating instances of this kind almost without number where ignorance or carelessness leave eyesores for years.

The Rector & Wilhelmy Company, Omaha Neb., issue a fall circular of seasonable goods, of which a varied line is exhibited. Illustrations, descriptions and list prices are given, with discounts. Concerning the mar-

Since our last issue there have been but few changes of importance to note. Car-riage Bolts have advanced 20 per cent., and manufacturers are contemplating a further advance in the near future. Rope has advanced 1½ cents per pound, owing to the scarcity of Sisal hemp. Shot has advanced 25 cents per sack, the result of a meeting of the manufacturers and an advance in Lead. Powder.—The manufacturers have held a meeting, resulting in an agreement to advance meeting, resulting in an agreement to advance the price \$1.50 per keg. The general market is decidedly firm, and many lines have a strong upward tendency. The indications are that prices have reached bottom, and dealers will consult their own interests by carrying full stock.

being carried on in the columns of the London Ironmonger in regard to "the management of shops and stock," and in view of the indications that are often observed of a lack of proper care and attention to this matter, one of the correspondents refers as follows to the spirit with which employees should perform their duties, with a view fitted up and stocked with a complete assort- both to their own and their employers' in-

The pivot upon which the whole question turns is "duty," and the fault is not one of ignorance, but of gross neglect, on the part of the assistants, both in the welfare of their masters and their own. Let us each imag-ine what would be his feelings if, in the position of master, his assistants deliberately refused to study his interests and left his stock to ruin and trade to decline. And then how many are there that recognize that in studying their master, doing their best, taking advantage of every minute as it flies, and trying how much, instead of how incentive to labor, but the sense of duty and one's own interest come in a very good incentive to labor, but the sense of duty and one's own interest come in a very good second. Is it feasible that a man can waste half his time, shirk his work, hate the sound of 7 a. m., and long all day for closing time during his assistantship, and then on becoming a master blossom suddenly into a business man, likely to succeed in life! And yet these are the lines upon which the majority of our young men are running.

The dimensions of the Nail Counter are as follows: 3 feet high, 3 feet 9½ inches wide, length 9 feet 8 inches, the top, which is of as, projecting so as to make the counter top 4 feet wide and 10 feet 2 inches long. Nail boxes as represented in Fig. 13%, slide in from each side, back to a partition on the shelf, 18½ inches from the floor, 6 inches of this hight being the platform base of Counter. The size of the Nail boxes are as follows: Depth, 21½ inches business man, likely to succeed in life? And yet these are the lines upon which the

ter's life is a faithful service, and he who during that time does his duty, acts in every way as if the affairs were his own, and not his master's, and takes a pride in the appearance of the premises, can be certain of being able to fill whatever higher post may fall to his lot competently and well.

Parkhurst & Wilkinson, Chicago, Ill., under date August 26, refer as follows to the condition of the market :

The advance in many lines in our stock compels us to withdraw our quotations. The advance in Iron and Steel comes mainly from the active and large demands from railroads. The scarcity of Wagon Stock, especially Hickory Axles, Ash Tongues, Sawed Fellose, Bolsters and Reaches has caused a sharm advance in prices. caused a sharp advance in prices.

#### TRAVELING SAMPLE CARS.

The London Ironmonger in a recent issue, alluding to a letter of their Canadian corespondent, in which he referred to the Canadian Pacific Railway Company as purposing to run special trains for commercial travelers across the continent, with sample-room cars is intimated that it is proposed to make the for the display of merchandise, remarks editorially :

The sample cars for travelers mentioned in our last issue as being likely to be adopted on the Canadian Pacific Railway ought to be very useful in many other parts of the world. As a matter of fact there is no reason why they should not be in universal use wherever railways exist. Commercial travelers who carry bulky lots of samples are only too well aware of the trouble and cost involved in taking their boxes about the country, packing and unpacking, and the frequent difficulty of securing good stockrooms at hotels or inns. By the general use of properly-fitted sample cars all that trouble and some of the cost might be avoided, while the samples themselves could in many instances be better and more effectively displayed. Heavier samples could also be thus shown to possible buyers. It would simply mean asking customers to step down to the railway station instead of to the hotel, and under some circumstances there would be a distinct gain in resorting to the former instead of the latter. In a country like Spain such travel-ing sample-rooms would be of the highest value, seeing that the goods could be taken about in the best possible condition, and would be free from many of the risks which might be incurred otherwise. If some en-terprising railway-wagon builder would turn out a car specially adapted for this purpose he would in all probability secure a reward quite adequate to the outlay and trouble in-

The following are the remarks of their orrespondent, referred to above :

The Canada Pacific Railway Company are nfusing much business energy into this ountry by their schemes and propositions. They now propose to run special trains for caused by the carelessness than if it had been done right in the first place. I saw Part of this train is to consist of sample-yesterday a pipe-fitter waste enough time in cutting the threads on a pipe, because of a defective pipe-holder, to do three times the and at Port Moody five or six days are to be s and at Port Moody five or six days are to be allowed to visit Victoria and Westminstor, British Columbia, the return trip occupying one month. With these and other advantages it will be seen that traffic will be made for the road, and that the business community will find that they have wise friends in the Canadian Pacific Railway. The commercial traveler will henceforward do much of his business in his car, and the wire at his elbow will probably conclude many a stroke of business, as he can reach his principals at almost any moment with of principals at almost any moment with ofprincipals at almost any moment with of-fers. As the Germans are adopting steam-ers for floating sample-rooms, the Canada Pacific Railroad determined to follow the plan on the rail. English houses should follow this up. The cable to headquarters should even supersede the trade from this side if necessary. side if necessary

#### ARRANGEMENT OF HARDWARE STORES.

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In the descriptions which have been given of the different departments of Hardware stores, Nail Counters have received the largest share of attention, and many methods of arranging them have been described, each baving its advantages and advocates, and doubtless serving a good purpose. Our readers have expressed surprise at the variety of Nail Counters thus exhibited, and many of them have found suggestions of value. But the variety is not yet exhausted, and we describe below still another, with decidedly novel features.

Walker & Thayer, Portland, Ore. give as the following description of the Nail

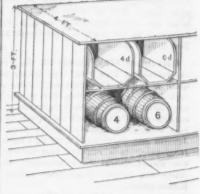


Fig. 137.-Nail Counter,

Counter which is illustrated in the accompanying cuts, Figs. 137 and 138

The dimensions of the Nail Counter are as

back end, making it very easy to fill the box on the floor. Then, lifting it so that the back end rests on the shelf, it is easily pushed into place. We have used this Counter for Nails for the past three years, the previous use in the store of our predecessor. A. Goodnough, being nearly four years. The case was built and the store of our predecessor. decessor. A. Goodnough, being nearly four years. The case was built and planned by Mr. Goodnough six or seven years ago, and

121 IN.

Fig. 138.—Nail Box

has always been considered a model Nail Counter, as numerous measurements and drafts of it will testify.

Our readers will follow with interest the description given below of the Hardware and Iron store of W. H. Miller, Bay City, Mich., which is illustrated in the accom panying cuts, Figs. 139, 140, 141, 142 and As comparatively little has been said in this discussion in regard to the arrangement of Iron rooms, a description of Mr. Miller's method of storing Iron and Steel will be of special interest :

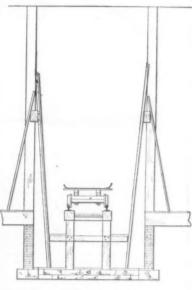


Fig. 141.—Section of Iron Pit.—Scale, 4 Feet to Inch.

My Iron room, Fig. 140, is 100 feet in length and 25 feet wide. You will notice that I send you a sectional view of my Iron pit, Fig. 141. This pit is 4 feet deep, 9 feet 16 feet in the clear. The entire south side

I do not carry my stock in painted wooden boxes, but place the original package of Hardware on my shelves for retail, as my experience teaches me this is decidedly the most convenient and best way of getting at the stock quick. One distinctive feature I have adopted in the arrangement of my and Finishing Nails, Tacks, Screws and other goods, as shown in Fig. 142-I have partitioned off some of the shelves in bins of sufficient size to carry a stock of all such articles in separate bins. For instance, I carry in stock Mill Files from 6 to 14 inches inclusive (eight sizes of Mill Files), of two or three different makes, in all about 20 bins for Mill Files, A, Fig. 142. Each bin will hold from 25 to 50 dozen Files. For Copper Rivets and Burrs the bins will hold about 50 pounds of each size, and, as I carry about 50 pounds of each size, and, as I carry in stock all sizes from ½ to I inch inclusive, and from No. 7 to No. 12 inclusive, it takes about 30 bins for Rivets and Burrs. Bins for Clout and Finishing Nails from ½ to 2 inch inclusive, C. Fig. 142, are made to hold 100 pounds of each size. For Screws they are made to hold from 10 to 20 gross of each size from ½ to 4 inch inclusive. size from 3% to 4 inch inclusive. Strap and T Hinges are arranged in the same way, a bin for each size, and many other articles are handled in the same manner. sider this a very convenient way to handle many articles in the Hardware line.

platform made of 6 x 6 timbers; this platform is about 6 feet from the floor. On this platform are four tanks, each tank holding three barrels of Oil. One-inch iron pipes stock is that for many articles—such as and these pipes are carried to the first floor, Mill Files, Copper Rivets and Burrs, Clout and have a 1-inch brass faucet on the end of each pipe. Boiled and Raw Linseed Oils, Turpentine and Driers are raised to the third floor by the elevator, and the contents of the barrels are poured in the tanks through large iron funnels that pass through the third floor to the tanks on the platforms of second floor. You will see that the arrangement makes it exceedingly handy for meas uring out Oils, Turpentine and Driers, as the outlets are on the first floor, near the Paint shelving. The drippings from the faucets pass into a large iron funnel, which passes through the first floor into a tank in the cel-

Before closing my report I must give your readers a description of my elevator. It is ocated near the rear entrance of main store. the car track from the Iron room running up to it. It is operated with a 7-horse-power Otto gas engine, and runs from cellar to top floor. The platform being 9 x 4 feet enables me to elevate Sheet Iron and other bulky goods with ease. This is the most economical power that I know of the exbulky goods with ease. This is the most economical power that I know of, the ex-

My arrangement for Oil is, I think, a new details, and therefore extract from it only feature. On the second floor I have a strong the figures which have a more direct bearthe figures which have a more direct bearing on the main subject.

It will be noticed that on the Canada Southern road the consumption of fuel is lower than on any of the other lines, favoring the assumption that the gradients and curves are very light. In this we are supported by Mr. Cunningham, according to whom there is almost throughout no grade steeper than 15 feet to the mile, and the alignment is re-markably free from curves. The grades on The grades on markably free from curves. The grades on the Michigan Central Railroad are considerably steeper than those on the Canada Southern, and in places reach 52 feet to the mile. On the Hannibal and St. Joseph the grades are apparently yet steeper, since, though no definite reference is made to this point, the trains hauled, according to the figures in the existing made to this point, the trains nauled, according to the figures in the original table, are much shorter than on the other three roads. On the Lake Shore and Michigan Southern the grades again are easier and nearly as good as those on the Canada Southern. These facts are reflected in the figures which was given and should be in the figures which we give, and should be borne in mind in making comparisons. As regards the proportion of fuel energy wasted in locomotives, Mr. Cunningham takes the case of the Canada Southern Railway alone, as only for this line the necessary information concerning gradients was available. Adopting D. K. Clark's figure of 14.133 heat-units for the heat of combustion of 1 pound pense of gas at \$2.25 per 1000 feet being units for the heat of combustion of 1 pound I have no new feature for sampling Stoves.

I have no new feature for sampling Stoves.

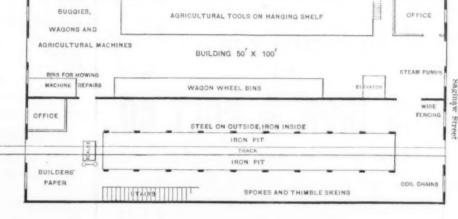


Fig. 140.—Iron Room and Warehouse.

BELTING AND PACKING- NAILS UNDERNEATE PRIVATE OFFICE AXES, HORSE HAILS TOE CALKS, BABBIT METAL STORE 50' X 100 OFFICE DEBI: STOVES SAMPLE COUNTER REFRIGER-NAIL BINS UNDER COUNTER GENERAL HARDWARE

Fig. 139 .- Diagram of W. H. Miller's Store.

On each side of this pit and extending its to the ceiling. The shelves are 18 inches entire length a wooden frame is built from deep, except for a space of 3 feet from the the floor to the ceiling, of proper size timbers, against which the upper ends of the bars floor up; here they are 3 feet deep, which against which the upper ends of the bars gives me a shelf counter 18 inches wide and extending the length of the room, Fig. 142. In order to reach the top shelves I have plan and end view of Iron pit that an Iron Trail track runs from my Saginaw street T-rail track runs from my Saginaw street front through the entire length of my Iron room, passing between the rows of Iron that stand in the pit. This track is about 30 inches wide, and it crosses the alley to my power elevator in the rear of my Hardware store. A car made of iron runs on this store. A car made of iron runs on this track, and passes, as you will notice, over a dormant platform scale, made expressly for this purpose by Fairbanks & Co.

The Iron is received either at the Saginaw

street front or in the alley, taken from the dray, and placed on the car, and after being weighed each size is put in its proper place.
I can easily carry in stock at least 400 tons of Bar Iron; and as the bottom of the Iron pit is solid stonework covered with oak plank, the weight of the Iron has no effect on my building. I do not carry my Steel stock in this pit; the Bars being shorter, I stand the Steel on the outside of the pit and I stand the Steel on the outside of the pit and back of the Bar Iron. a place being made for each size by driving iron pins in the wooden frame. In this Iron room I carry my stock of Heavy Hardware, such as Horse Shoes, Wrought Boat, and Railroad Spikes, Fence Wire, Sash Weights, Building Paper, Coil Chain, Anvils, Vises and Wagon-Makers'

Hardy My Agricultural department adjoins my Iron room and is the same size. In this room I have a hanging platform extending nearly the entire length of the north side wall, on the entire length of the north sue wall, on which I carry a stock of light Agricultural Tools. On the opposite side I have about a dozen bins that are used for different size Wagon Wheels, about three sets in each bin. The floor space of this room is used for Carriages, Wagons and Machinery pertaining to this business. A hand elevator in this room connects it with the second floor. On the second floor I carry my stock of Wagon-Makers' Woodwork and other light articles in the agricultural line. I have my tinshop on this floor, where I manufacture every thing in the line of Tin, Copper and Plain and Galvanized Sheet Iron, besides Gas and Steam Fitting.

In regard to the arrangement of his store, the first floor plan of which is given in Fig.

139, Mr. Miller writes: Before going into details I will say that my business is principally Heavy Hardware, such as is used by lumber mills and lumbering. I carry besides a full stock of Builders', House Furnishing and Carriage makers' Hardware, Stoves, Paints, Oils, Painters' Supplies and Agricultural Implements. The building I company was built expressly for Hardware, Stoves, Paints, Oils, Painters' stationary ornamental iron ladders running Supplies and Agricultural Implements. The from this shelf counter to the top shelf, one building I occupy was built expressly for end being bolted to the center and upper building I occupy was built expressly for this business about 15 years ago, and is on Water street, running back 100 feet to an alley, as you will see by the drawings, Figs. 139 and 140. It has a frontage of 50 feet, and is three stories, with a basement. This gives me 20,000 square feet of floorroom for these departments of my business. I do not claim any new features in the argament of my stock in cellar or the two upper floors, as the entire space on these upper floors, as the entire space on these the shelf. These ladders are placed at each space on these the shelf. These ladders are placed at each some about 15 years ago, and is on data, since the published annual reports selection gord may be inches wide, the sides being made of 1½ x ½ flat iron, and the sides being made of 1½ x ½ flat iron, and the sides being made of 1½ x ½ flat iron, and the sides being made of 1½ x ½ flat iron, and the sides being made of 1½ x ½ flat iron, and the sides being made of 1½ x ½ flat iron, and the sides being made of 1½ x ½ flat iron, and the sides being made of 1½ x ½ flat iron, and the requisite data, since the published annual reports selection give the information in the direct manner in which it is required. Mr. Cunning made of 1½ x ½ flat iron, and the sides being made of 1½ x ½ flat iron, and the requisite of my business. Back of this are the published annual reports selection give the information in the direct manner in which it is required. Mr. Cunning made of 1½ x ½ flat iron, and the requisite of my business. Back of this are the published annual reports of flowers are published annual reports of flowers. In the rear of my store I have a sample of Tinware, Agate Ware, Galvane, and it is required. Mr. Cunning made of 1½ x ½ flat iron, and the requisite of my business. Back of this are the published annual reports of the information in the direct manner in which it is required. Mr. Cunning made of 1½ x ½ flat iron, and the requisite of the my business. In the rear of my store I have a sample of Tinware, Agate Ware

wide and nearly the length of my Iron room. | wall of this room is shelved from the floor

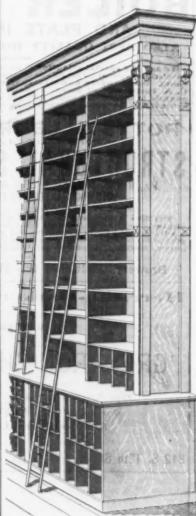


Fig. 142.—Arrangement of Shelving and Ladders.

have platforms suitable for carrying 50 to 60 Stoves on sample in the ordinary way Along the north wall I have an elevated platform about 8 feet from the floor. This platform is suspended from the ceiling with iron rods made of I-inch round iron; a stairway leads to the platform. I have shelves from the platform to ceiling which are used for Tinware. Under this hanging platform I have my Belt counter, which I have divided off in spaces for each width, Rubber and Leather Belting, and as I carry Leather Belt, both single and double, all widths, from 11/2 inches to 16 inches single and up to 24 inches in double, and in Rubber up to 14 inches, it requires a good many spaces for Belt. On the south side of store and in front of my Hardware shelves and running the entire length of store I have a line of counters in three sections; two of



Fig. 143.—Nail and Bolt Counter.

counters, the bins running entirely through so as to enable the weigher to get Nails from either side of the counters. I have a new feature in these counters, Fig. 143, that I have not seen in other stores. Over the Nail bins I have small bins for Carriage, Tire, Sleigh Shoe and Stove Bolts, each bin holding a sufficient quantity to retail from. In the rear of my have a space of about 40 feet in width, and running from floor to ceiling, for bins to hold Machine Bolt and full packages of Carriage and Tire and Sleigh Shoe Bolts, each bin of sufficient size to carry a reasonable stock of each Bolts from 1 1/2 x 3/3 to they are of general interest and deserved a x 1 inches. In front of these bins I have attention.

for business, very seldom getting out of tons, he calculates that with an average the second floor, and connected with the engine in the cellar, with a 3-inch belt passing through first and second floors. As it is necessary to keep the engine in motion nearly all the time in order to work the elevator, the expense for operating the Shingle Band machine is trifling. If any of your large army of readers wish

any further information with regard to the arrangement of any part of my Iron room or main store, by writing to me they will be cheerfully furnished any desired information.

#### Locomotive Fuel Records.

Mr. Granville Carlyle Cuningham, who until recently occupied the position of acting-chief engineer of the Canada Southern Railway, has prepared an interesting table giv-ing the consumption of fuel on locomotives on a number of different railroads. This he has embodied in a paper presented to the British Institution of Civil Engineers a short time ago, with the object of showing not only the amount of coal consumed per unit of work done, but also the variation in con sumption on different roads, and the propor tion of energy of the fuel utilized to the full energy. Unfortunately Mr. Cuningham has followed one of the old—and, we regret to say, customary—practices of adopting for the unit of work the ton weight moved I mile, and his results accordingly lack that signifi-cance which the use of a more satisfactory

order. This engine also runs a machine for grade of 5 feet to the mile, making the recutting Shingle Bands. The machine is on sistance to haulage 11 pounds per ton, the sistance to haulage 11 pounds per ton, the full energy of the coal is to the work effected as 100 is to 3.5, representing a loss of .95 per cent. It is to be regretted that this investigation could not be extended to the other lines, but, even limited though it has been to one case, the result indicates clearly the field for improvement which is yet open to the engineer.

> The foundations of the United States Army building, on the site of the old Produce Exchange, are being laid on heavy piles. The ground measurements are about 104 x 92 feet, the hight eight stories. Up to the second-story cornices the walls will be of rock-faced red American granite blocks, and above of pressed brick with belt courses. All the interior columns are to be of cast iron, the beams and girders of rolled steel, the floors of fire-clay blocks, covered with yellow pine, rendering the building nearly, if not quite, fire-proof, the only combustible parts of it being the floors and doors.

> The total shipments of coke from the Connellsville region last month were 25, 565 cars. against 25,400 cars for August. For cars, against 25,400 cars for August. For the 25 working days, one day having been lost by reason of the Knights of Labor picnic at Scottdale, the daily average was 1021 cars. Of this output the syndicate shipped 17,690 cars, and the outside producers 7875. Of the 10,930 ovens reported

	Conada Southern.	Michiga	n Central.	H naibal Jos	Lake Shore and Michigan Central.	
	1881.	1879.	1850.	1879.	1880,	1881,
Total engine mileage (including shunting).  Passenger train mileage Number of passengers moved	3,749,701 987,237	7,697,061 1,698,098	7,690,051 1,865,258	414,118	1,995,739 410,358	13,586,207 2,549,681
1 mile Freight train mileage	40,917,987 1,775,287	93,232,480 3,687,305	115,523,769 8,666,605	21,545,868 938,095	19,925,041 975,608	176,148,767 7,481,480
Number of tons of freight moved 1 mile	487,965,507	791,019,418	735,611,995	111,987,174	120,665,740	1,851,166,018
Total amount of coal con- sumedtons Tons of coal apportioned to	127,270.5	290,160	808,971	09,990	76,H9H	509,830
passenger service	88,072	75,950	84,078	15,190	17,491	102,837
Pounds of coal consumed per passenger train mile	77.19	88.88	90.15	78.11	85 24	80,68
Pounds of coal consumed per ton moved 1 mile	1.18	1.10	1.01	0.86	0.98	0.80
Pounds of coal consumed per passenger moved 1 mile Tons of coal apportioned to	1.86	1.61	1.45	1.81	1.75	1.16
freight service	89,198	204,910	219,838	54,800	59,407	899, (83
freight train mile	100,49	111.17	120.20	116.83	121.77	104.78
Pounds of coal consumed per ton of freight moved 1 mile.	0.867	0.57	0.60	0.98	0.99	0.48
Pounds of coal consumed per ton of gross weight*	0.108	0.25	0.27	0.40	0.41	0.17
Average miles run by engines per ton of coal	29.16	27.47	27.47		25.95	27.04

\* Weight of the cars is assumed at 10 tons each.

Notwithstanding this drawback, however,

In preparing the table, which embrace a counter partitioned off for Wrought Spikes, Bolt Ends, Square and Hexigon Square for the Canada Southern, the Mich-Nuts and Washers, to retail from. I carry igan Central, the Hannibal and St. Joseph on this floor a portion of my Nail stock in kegs, in order to make it handy to get at them in a hurry.

and the Lake Shore and Michigan Central railways, considerable difficulty was naturally experienced in obtaining the requisite them in a hurry.

In the rear of my store I have a sample data, since the published annual reports selounter so arranged as to show a full line of dom give the information in the direct mannar in which it is required. Mr. Cunning-

basis of calculation would have given them. available in the region there were but 443 idle last week, classified as follows: Pool ovens, 216; furnace ovens, 100; old Mt. Braddock Works, idle for several years, 127.

A syndicate represented by E. R. Chai-man, of New York, have purchased a controlling interest in the Cumberland Mountain coal fields, lying in East Tennessee, between the Knoxville and Ohio and Cin-



### L. COES' GENUINE IMPROVED

Knife Handle

PATENT

# **Screw Wrenches**

L. COES & CO.,

Worcester, Mass. ESTABLISHED IN 1839.



Registered March 31, 1874.

Sectional view illustrates our NEW KNIFE HANDLE, showing Mallcable Iron Frame and Shank of Bar keyed into position. E Straight Bar, Extra LONG NUT

FOR SCREW IN JAW. The Best Made and Strongest Wrench in the Market. Send for Illustrated Price List and Circular.

J. C. McCARTY & CO., NEW YORK,

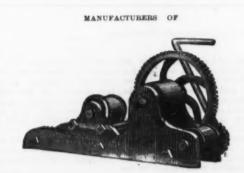
Sole Agents.



Nos. 20 to 26 Main Street,

CARPENTERSVILLE, KANE CO., ILL.

ools, Blacksmiths'



### Tire Bender No. 2, JACK SCREWS,

Track Jacks, Carriage Makers' Vises,

SAD IRONS. COPYING PRESSES AND STANDS, &c.

# American Manufacturing Company, PHILADELPHIA,



MANUFACTURERS OF THE

ONLY PERFECT ADJUSTABLE.

# Sliding Door Hangers,

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## TRANSOM LIFTER,

ADJUSTABLE SAW VISES, SPOKE SHAVES, SPOKE TRIMMERS, BENCH HOOKS, HOLLOW AUGERS, EXCELSIOR CAN OPENERS,

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Parlor Door Hanger.

### FOR SALE BY LLOYD & SUPPLEE HARDWARE CO.,

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"FLORENCE" >LAMP STOVE Well Advertised, Sells Quick and Pleases Everybody. Why not try them? The ALFORD & BERKELE CO.

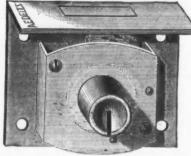
Selling Agents, Pat. Nov. 14, 1876, & July 11, 1881. Others Pending. 77 Chambers St.,

J. H. Sternbergh, Reading, Pa., REFINED BAR IRON.

Bolts, Nuts, Washers, Rivets, LAG SCREWS, TURNBUCKLES, Rods and Forgings for Bridges and Buildings, &c., &c., &c.

ORE JIGS. The attention of Hematite ore miners is called our new Jig. The simplest and most effective

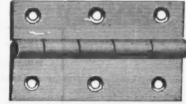
McLANAHAN & STONE, Gaysport Foundry, Hollidaysburg, Pa. New York. Manufacturers of Ore Washers, Screens, Eleva-tors, Conveyors, any general Ore Mining Machin-ery.



No. 51 Lock.

J. C. McCARTY & CO., Agents, 97 Chambers and 81 Reade Sts. NEW YORK.

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W. & J. TIEBOUT,

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ALWAYS GIVES THE UTMOST SATISFACTION

Main Belting Co. Manufacturers of THE LEVIATHAN COTTON BELTING.

Unsurpassed for Strength, Durability and Made to any Length, Width and Strength Main Driving Belts. Guaranteed to Ru n Straight, Even Through-out.
No Cross Joints, Un-affected by Damp. Clings well to the Pulley, Has no equal. In fact, is THE BELT.

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# **BLOWERS & FORGES**



CHAMPION **BLOWER &** FORGE CO., Cor. Cherry and James

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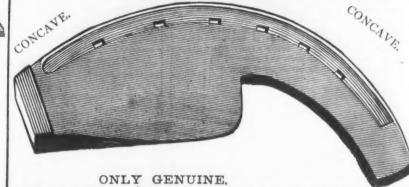
WHITE MOUNTAIN FREEZER.



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BUILDER OF WATERBURY, CONN.,

# "GREENFIELD" FORGED OX SHOE.



Made under the Parker and Colburn Patents, from Burden's H. B. and S. Iron. Nail holes punched, and every shoe perfect. The Parker and Colburn Patents cover broadly the dies in which the Shoes are forged, we are the only licensees, and all parties are cated as such as the only licensees, and all parties are cated as such as the cated as the state of the dies or the forging mechanism or processes so protected, as our rights under sail saint using either of the dies or the forging mechanism or processes so protected, as our rights under sail so the sail of the sail

No. 1, Full Length, Concave, 5 inches, Weight, per Set of Eight Shoes, 3 pounds.

Packed in boxes or kegs of 100 pounds, half each rights and lefts. Full weight, and no charge for packages -PRICES .-

For orders of One Ton, or more, 9 cts. per pound. For orders of 500 lbs., or more, 10 cts. per pound.
" less than 500 lbs., 10%" Made only by

FALLS CO., MILLERS

74 CHAMBERS ST., NEW YORK.

### MANUFACTURED BY THE NATIONAL HORSE NAIL CO., Vergennes, Vermont. HOT FORGED AND COLD HAMMERED POINTED MADE OF BEST NORWAY IRON AND WARRANTED. WAREHOUSE 97 CHAMBERS AND BI READE STREETS NEW YORK. J. C. Mc CARTY & CO. Sole Agents.

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New York Office, No. 221 Pearl, Corner Platt Street, MANUFACTURERS OF

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AND PLATE IRON GENERALLY. ALSO BEST QUALITY HOMOGENEOUS STEEL PLATES.

We ask the special attention of the trade to our C. H. No. 1 Boiler Plates, which we manufacture expressly for the Shells of Steam Boilers and stamp 50,000 pounds T. S. when desired. One hundred and sixteen tests of this iron, made during the last three years by the U. S. Inspectors of Steam Vessels, show an average tensile strength of 58,505 pounds to the sectional square inch, and an average reduction of area of the fractured section of 30% per centum. Our prices are as low as the production of a good article will admit of.

POTTSVILLE IRON & STEEL CO.,

Viz., BEAMS, CHANNELS, TEES, ANGLES, PLATES AND BARS; Also STEEL AND IRON AXLES FOR FREIGHT AND PASSENGER CARS.

This Steel is manufactured by the CLAPP-GRIFFITHS process, and is specially adapted, in addition to the above, for Boller and Bridge Rivets, Wire Rods, Nail Plates, &c. &c. Our Mild Steel s well adapted for use in place of the best quality of Wrought fron; where a greater strength and ductility is required, it welds readily as Iron. Also Billets, Slabs of all sizes and any desired temper. Shafting of all sizes in stock, from which prompt shipments can be made.

Brewery, Malt and Ice House Construction a Specialty.

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# GREY IRON SHELF HARDWARE

Our Specialties: Axle Pulleys, Well Wheels, Grindstone Fixtures, Hay-fork Pulleys, Wash-boiler Handles, Stove Lifters and Post Mauls,

812 S. 12th Street,

St. Louis.

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# PURE TURKISH EMERY.

South Walpole, Mass.

#### MECHANICAL.

New Hydraulic Presses.

farm and freight wagons and other purposes where great pressure is required. The pump is made of brass, the balance of cast and wrought iron. The diameter of the

Where several boilers are set together and onnected by a common mud drum, and de-

Steam drums are a nuisance, pure and power.

Fig. 2 shows a press having a capacity of 12 tons pressure. The pump here also is made of brass, while the other parts are of cast and wrought iron. The diameter of the area pluncar in this case is a inches.

Access may be nead to it at all times, even when the boiler is running. Such an arrangement may save much trouble. The importance of accessibility to a mud drum cannot be overestimated.

Steam domes are in the majority of cases will be better in this case than it will be if the ram plunger in this case is 4 inches, much more useless appendages to steam the conversion into steam has taken place

connected by a common mud drum, and dependence is placed upon the drum and its simple, in ninety-nine cases in a hundred where they are used. Why steam should be connections for equalizing the hight of the water in the several boilers, trouble is sure to arise unless the connections are very The Illinois Iron and Bolt Company, of Carpentersville, Ill., have just put on the market two hydraulic presses of which we annex engravings.

Fig. 1 shows a press of 50 tons pressure capacity, intended for pressing boxes into bulbs and for pressing on hub bands for out of any boiler which may be fired somewhat harder than the others. This is a very frequent occurrence, and overheating of tubes is the inevitable result. For the which is continuous and irrevocable from The pump is and wrought iron. The diameter of the cast and wrought iron. The diameter of the pump plunger is 8 inches, and the diameter of the pump plunger from 1 to 1½ inches. It will raise 6 inches. Its weight is 490 used it should be connected and set so that access may be had to it at all times, even used it can be operated by hand or the boiler is running. Such an arms and make the body of water in the

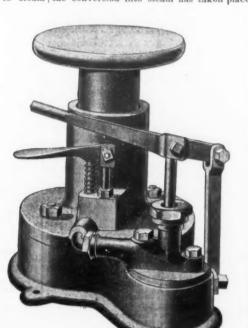


Fig. 2.—Press of 12-Ton Capacity.

NEW HYDRAULIC PRESSES, BUILT BY THE ILLINOIS BOLT AND IRON CO., CARPENTERSVILLE, ILL.

and the diameter of pump plunger % inch. It will raise 4 inches. The weight of the press is 180 pounds, and it can also be operated by hand or power. Manufacturers of light wagons and carriages will boilers, if such a thing be possible, than mud drums are. The object for which a steam dome is used is in itself a very good one, but it is rarely accomplished by using the dome. The object is, of course, to object we do when the dome. The object is, of course, to object we have a steam of the dome. The object is, of course, to object which a possible, than mud drums are. The object for which a pressible of the boiler. find it very convenient for pressing on skeins and hub bands, and for pressing in boxes. It can also be used to advantage for other purposes where pressure is re-quired. In both cases the engravings very clearly show the general design of the

Fig. 1.—Press of 50-Ton Capacity.

#### Domes and Drums.

The use of steam domes, steam drums and mud drums on all kinds of boilers, says the Locomotive, is the rule in some parts of this country under all conditions. Some designed by them, and most boiler-makers would rather put them on than not. They amount unless the dome is well protected by some good reason for their presence, dome is an expensive appliances; hence there should be some good reason for their presence, are expensive appliances; hence there should be some good reason for their presence, else they would better be omitted. Are they in the majority of cases where they have been used worth the money paid for them? Do they exert a beneficial influence upon the working of the boilers, their durability, or upon the quality of the steam? In nine cases out of ten we believe they do not. The purpose for which mud drums are used is to form a lodging-place for sediment to deposit itself in. In most cases where it is used the feed-water is also introduced to the boiler through it. When two and fre-quently more boilers are set together over one grate it is common practice to connect them all together by means of a long mud drum running the entire width of the battery; very often in such cases all the boil-ers are supplied with water by one pipe, which delivers the water into this drum.

purpose without other disadvantages greater than those it is intended to obviate! As to providing a lodging place for sedi-ment we can only say sediment should never be allowed to lodge inwhere. There is no be allowed to lodge knywhere. There is no excuse and not the slightest necessity for it. It is as easily blown out of a boiler as from a mud drum. A 2-inch blow-off pipe connected to the bottom of a boiler not over 12 inches from the back end and opened a few seconds every day at the proper time will suffice to keep a boiler entirely free from sediment. Mud drums, from their location in the cooler portion of the furnace, and more especially where the feed-water is safely omitted. Introduced through them, are exposed to a comperature which seems peculiarly apt to cause corrosion. This, taken in connection with the fact that they are usually so constructed that a proper inspection of them is difficult and often impossible, furnishes a very strong argument in favor of their abolition. A very great number of most destructive accidents have arisen from this cause alone. Where a mud drum is insisted upon, a boiler should not, under any circumstances, be fed through it. It is almost the worst place for the introduction of the feed that could be devised. The storage capacity for steam which a camper which is some times adduced as an argument in favor of their use, is insignificant, and can be obstition. A very great number of most destructive accidents have arisen from this cause alone. Where a mud drum is insisted upon, a boiler should not, the introduction of the feed that could be devised. The storage capacity for steam which a can be instable, one makers direct attention to the fact that the different parts are not crowded together, but are so remove as to be conveniently open at all or or changed, as desired, in the dome arranged as to be conveniently open at the or crowded together, but are not crowded together, but are not crowded together, but are are not crowded together, but are as the convenients of the convenients of the convenients of the convenients of the fact that the different parts are not crowded together, but are not crowded together, but are as to be conveniently open at all or or changed, as desired, in the arranged as to be conveniently open at the or changed, as desired, in the are not crowded together, but are so be conveniently open at the or changed, as desired, in the are not crowded together, but are so be conveniently open at the or changed, as desired, in the siste of two parts, and slides into the large that the possible time. The false table constant are not crowded together, but are so be conveniently open at the or changed as to be conveniently open at the sam the introduction of the feed that could be devised. The feed-water, often cold and always at a much lower temperature of the boiler shell 2 inches ture than the shell plates of the boiler, enters the boiler at the bottom and flows along the shell toward the front end in direct contact with the plates. The evil effects of this catter that the bottom and flows along the shell toward the front end in direct contact with the plates. The evil effects of this catter than the boiler with the plates. The evil effects of this catter the bottom and flows along the shell plates in a very and hardly be overestimated. It is almost certain to fracture the shell plates in a very and hort time. More fractures of girth seams on boiler bottoms, with the consequent large bill for repairs, have probably arisen from this cause, in boilers fed in this manner, than from all other causes combined.

\*\*ame number and arrangement of tubes we can get the extra coulic feet of steamroom though it has the consequent of the boiler and lowered on a swinging frame be larged in the manufacture of coffee and though its against plants, and is placed in the manufacture of the boiler as wind hough it has telel, runs in long self-oiling bearings, and is placed in the manufacture of the boiler as wind though it has telel, runs in long self-oiling bearings, and is placed in the manufacture of the boiler as wind though it has telel, runs in long self-oiling bearings, and is placed in the machine than that of the boiler as wind though it has telel, runs in long self-oiling bearings, and is placed in the manufacture of the boiler mach though it has telel, runs in long self-oiling bearings, and is placed in the manufacture of the boiler. The series and lowered on a swinging frame be larged in the manufacture of the boiler. The series and lowered on a swinging frame to the boiler state that a location of the boiler state the post of the boiler state the post of the boiler was the forced to evaporate a large of the boiler was the forced to evaporate a large

one, but it is rarely accomplished by using the dome. The object is, of course, to obtain dryer steam than could be had by contain dryer steam than could be had by necting the steam-pipe directly to the boiler shell; but if a boiler is properly designed, and there is no good reason why it should not be, the steam delivered will be dryer without a dome than it will be with it. Even where a boiler is not properly constructed there is no evidence that the quality of the steam is ever improved by the addition of a dome. The object sought is dryer steam; that actually gained is the additional moisture due to the condensation within the dome, and, in the case of a large dome averseed to currents. constructed, very considerably weakens the boiler shell. When the opening from the boiler into the dome is the full size of the dome the shell is greatly weakened unless an elaborate system of brazing is resorted to.

It is a vory difficult part of the boiler to brace properly, and hence it is rarely done.

When not done there is almost always leaking, and other evidences of distress are manifest. fest around the flange at junction of dome and shell. When a dome is used on a boiler the best

way to make everything secure is to cut the opening through the shell out the same size and form as that made for the manhole, and rivet an exactly similar ring around the the opening. This renders the interior of the dome accessible for inspection and repairs and gives it a good me in of stren Does this arrangement fulfill its intended purpose without other disadvantages greator than those it is intended to obviate?

As to providing a lodging place for sedishell, and on the shell of the dome, arising from the steam pressure, tends to flatten it and when high pressures are used it is aland when high pressures are used it is always well, and sometimes absolutely neces

Messrs. Cordesman, Meyer & Co., of No. 70 West Second street, Cincinnati, Obio, are directing attention to a variety wood-worker, the leading features of which can be gained from the annexed engraving. The machine is of a character to be used for rip sawing, cross-cut sawing, jointing, hand planing, routing, mitering, beveling, paneling, grooving, molding, &c. The frame is massive, and the table, which is of iron, is 80 teeth, uniformity would be impossible. Very heavy. The counter-shaft rests on the extension of the frame, and is provided with

is also made without jointing or boring at-

#### Transmission of Energy.

Discussing the question of electric-power transmission, Mr. Gisbert Kapp, the English engineer, concludes that: 1, it pays to transmit cheap water-power by wire rope if the distance is less than I mile, and elec the distance is less than I mile, and electrically if the distance is a mile or more—this applies to all powers; 2, it pays to transmit cheap steam power if the amount of energy required at the receiving station does not exceed 10 horse-power. If the distance be less than a mile use wire-rope transmission; for distances of I mile and upward, up to 2 or 3 miles, use electric transmission. Beyond this limit a small local steam or gas engine is preferable. While Mr Kapp's figures may bear some modification, they are of unquestionable in terest and value.

#### Scoring of Grindstones.

Referring to the recently oft-quoted para graph concerning an improvement in grind-stones, by which the wheel is given a reciprocating lateral motion in addition to its rotation, the Scientific American says:

In file making establishments the lateral movement of the grindstone is a necessity, e'se the file blanks would speedily cut the stone into annular channels. In some ma-chine shops, also, provision is made for the same movement. But if this sideways movement is absolutely reciprocal the stone will be scored as surely as though there was no movement sideways, only the scores will be curved instead of straight. For instance, suppose the shaft of the grindstone has end play enough on its journals to allow of a lateral motion of I inch, and a cam is fixed on the shaft with that amount of throw, a stationary guide on which the cam works to be secured to the frame. It is evident that, when the stone has made one revolution, its periphery will be, in relation to a fixed line on the frame, in exactly the same place as when it started, and in consequence if a scoring point was held against the face of the stone it would make a cut I inch sideways out of a direct line, but meeting to make a continuous ring, precisely as though the stone had no sideway motion

In order to prevent this continuous and uniform action the lateral movement, in reuniform action the lateral movement, in re-lation to the revolution of the stone, must be continually changing. For this purpose the driving belt should be on a pulley on a short counter-shaft, on which is also a gear-wheel that meshes with another on the shaft of the grindstone. This counter-shaft is to be attached by boxes to the grindstone frame. The gear on the grindstone-shaft should be wide enough on the face to allow the lateral movement of the stone without unmeshing the teeth of the gears. The cam is fixed to the grindstone-shaft, and may have its throw either as a raised strip or as a score, to be guided by a holder fixed to the frame; but if the gears have even numbers of teeth
—numbers devisible by each other—the uniform scoring cannot be avoided. So, one gear should have an odd tooth—"a hunting tooth," as it is sometimes called—which will

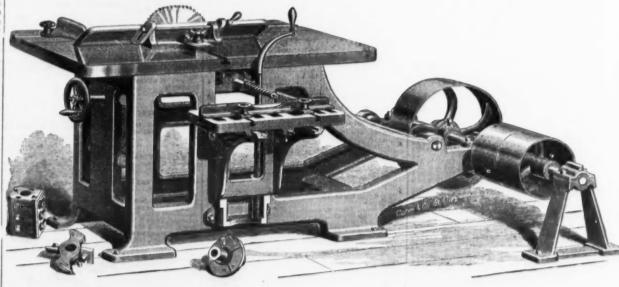
motives making the best use of their coal tachments, or with one and without the other, as customers may direct.

have no features about them that all engines on American railroads might not easily possess. Plenty of grate area and liberal heating surface in proportion to the cylinder capacity is the first requisite, which is supplemented by careful firing. With the high steam pressures becoming established, and the rapid flow of the gases necessary to generate steam with the rapidity it passes through the cylinders of a locomotive, doing the work of moving our heavy trains, it will never be possible to reduce the smoke-box temperature much below 600° f. That being the case, the utilizing of 60 per cent. of the fuel heat is getting close to the possible limit. Good firing is an essential that must never

be lost sight of where efforts are made to make a locomotive boiler do its work to the best advantage. When this is attended to the engine is suffering from some structural defect if the heat represented by the steam does not come close to 60 per cent. of the does not come close to be per cent. of the potential energy of the fuel. The most common mistake has been that of making the boiler too small for the cylinders, but it may occasionally be found that the hoiler is large enough, yet badly proportioned in other ways. The fallacy which found numerous adherents for a time, that the tube service was of little value in steam-making, has been of little value in steam-making, has been a costly piece of engineering heterodoxy to many railroad companies. The immense fireboxes that came into use as a substitute for tube heating surface have not contributed to the economy of fuel in ordinary service. Where a locomotive has to work nearly at its maximum power all the time, an immense grate area common to the large fire-boxes will conduce to econo oy, since a moderate quantity of coal will be consumed per foot of grate; but when an engine of this kind is required to work light, the consumption of coal becomes so low for the area the fire is spread over that it is impossible to prevent waste by the cool air reducing portions of the fire-box below the igniting temperature.

With a very large grate the tendency is to supply more air than the fire requires. Every cubic foot of air supplied beyond what is necessary for chemical combination is so much superfluous gas that has to be heated and passed through the tubes. As the heat produced by a pound of coal is always the same, the temperature of the fire varies inversely with the quantity of air heated by the combustion. This being the case, it is not surprising that much disappointment has resulted from the promiscuous increase of grate area in locomotives that work light a great part of the time. The kind of coal to be used and the nature of the service the engine will be required to do ought to influence directly the proportions of grate and heating surface to cylinder capacity. When these questions receive intelligent consideration our master mechanics may safely de pend on getting an economical locomotive boiler.

Cosmoline and cosmoline anti-corrosive varnish are new substances brought out in England. The cosmoline is a soft, greasy material somewhat of the character of the viscous jelly-like products of paraffine manufacture, and something like vaseline, but darker in color. Though viscous, it can



NEW VARIETY WOODWORKER, BUILT BY CORDESMAN, MEYER & CO., CINCINNATI.

an outside bearing in a way to insure firmness. The frame is long, making the belt tion in number of teeth is observed. from the counter-shaft to the mandrel so long as to avoid danger of the belt slipping.

With a way to insure firmner immaterial, so long as their disproportion in number of teeth is observed.

Improving the Lecomotive Hotler. With reference to the advantages po-

Writing under the above head the Na-

tional Car and Locomotive Builder, in its last

solvents. The cosmoline anti-corrosive varnish is a transparent varnish used for the same purpose, but dries hard and smooth, and is preferred by many, as it thoroughly protects bright work without affecting the brightness of its appearance, while it does not rub off. It is easily applied, and for many purposes has the improving effect of a varnish

The Rio Janeiro News calls attention to the recent action of the Government in imposing fines on foreign companies for transacting business in Brazil without formal permission. It says, by way of illustrating the workings of the system: "Some weeks ago a company, long established in Brazil, was fined \$3000 for transacting business in the Empire without official approval of tatutes and permission. This company has been engaged in the manufacture of coffee machinery for many years, and though its principal factory is located abroad, it has extensive foundries and workshops in Brazil,

# Current Hardware Prices, September 8, 1886.

HAR	D	W	A	R	E
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HARDWARE.	
Ammunition.	
A mmunition.  Caps. Percussion, \$\P\$ 1000—  'licks & Goldmark's F. L. Waterproof, 1-10's	ls 25
Musket Waterproof, 1-10's. G. D. S. B. 'nion Metallic Cartridge Co. F. C. Trimmed	30
Cen. Fire Ground Double Waterproof. Double Waterproof. in 1-10's	
ortridges— dis 6  Rim Fire Cartridges— dis 6  Rim Fire Militar/ Cartridges— dis 1  cu. Fire Cartridges, Pistol and Rifie— dis 4  cen Fire Cartridges, Military & Sporting, dis 3  cen Fire Cartridges, Military & Sporting, dis 3	0&2 5&2 0&2 0&2 add
Eley's D Waterproof, Central Fire	1s 2 1s 2 6&2 1s 2 1s 2
Berdan Primers, all sizes, and B. L. Caps ( Sturtevant Shells)	is 2
**Heil.— Faper Shot Shells, 1st & 2d or S. G. qual.dis 25&! Sefbold's Combination Shot Shells	&2 &2 &2 &2 &2
acts— acts— B. C. & W. B. A.—B. E., 11 up\$2.00   U. M. C. & W. R. A.—B. E., 9&10 2.30   U. M. C. & W. R. A.—B. E., 7&8 2.40   U. M. C. & W. R. A.—P. E., 11 up 3.10   U. M. C. & W. R. A.—P. E., \$211 up 3.10   U. M. C. & W. R. A.—P. E., 7&5 400   U. M. C. & W. R. A.—P. E., 7&5 400   Sley's B. E., 11 up 3.10   Sley's P. E., 11 & 20	\$1.7 \$2.8
Anvila.  Anvila.  Cagle Anvils.  Wight's.  Armitage's Mouse Hole.  Armitage Mouse Hole. Extra.	85
Sley's P. K. 11 & 20.  Anvils.	20 5
The nery Anvil and Vise. S. dis 408 Alpel Combined Anvil and Vise. S. dis 408 Apple Parers.—Advance. \$\psi\$ dos. Champion. \$\psi\$ dos. F-mily Bay State. \$\psi\$ dos. Gem. \$\psi\$ dos.	10 1 6.78 8.00 2.00 5 00
J. & Riley Carr. Patent Solid.   1163	5.00 0.00 3.00 5.00 6.50
Model	3.50 6.00 5.00 4.50 3.50
Standard. \$\footnote{\text{dot}} \text{dot} \text{dot} \text{V} \\ Turntable. \$\footnote{\text{dot}} \text{dot} \text{S} \\ Waverly. \$\footnote{\text{dot}} \text{dot} \text{S} \\ White Mountain. \$\psi\$ dot \$\text{dot} \text{Augers and Bits}.	4.50 5.00 4.50 5.00
New Haven Copper Co	10 %
Sometics and the state of the s	55 % 55 % 50 % 50 %
2. E. Jennings & Co., No. 30. dis 6  E. Jennings & Co., Auger Bits, in fancy boxes,  p. set, 32% quarters, No. 6, \$6; No. 3c, \$3. dis  p. set, 32% quarters, No. 6, \$6; No. 3c, \$3. dis  fussell Jennings Austrance lists. dis 50k10ca50c10c	10 % 10 % 15 % 25 %
vee Circular Lip.   dis	0 % 0 % 0 %
Ives	5 5
Color Augers     Color Augers     Ves	0 % 5 % 0 % 0 %
Common w grows \$5.00 to \$5.	.76
Diamond	0%
Syracuse   dis 90 & 30&     Bit Stock   wills   dis 50&     Morse Twist Drills   dis 50&     Standard   dis 50&     Cleveland   dis 50&     dis 50&	1 × 0 × 0 × 0 × 0 × 0 × 0 × 0 × 0 × 0 ×
Williams' or Holt's	0 %
A wing, Brane Perruie. \$3.50 \( \) gross—dis 40&16 Patent Sewing, Short. \$1.00 \( \) dos—dis 40&16 Patent Sewing, Short. \$1.00 \( \) dos—dis 40&16 Patent Sewing, Long. \$1.20 \( \) gross—dis 40&10 Patent Per, Plant Top., \$10.00 \( \) gross—dis 45&16  A dis 45&16  A	60
Sacil's Ship Auger Pattern Car Bits	-
awis. Handled Scratch. \$7.50 \( \) gross-4is Sockid Swis. Socket Scratch. \$1.50 \( \) dos-dis 25 \( \) 30 \( \) dos-dis 25 \( \) 30 \( \) dos-dis 25 \( \) 30 \( \) Awil and Tool Sets-(\) for its 10 \( \) sets. Awis & Tools No.20. \( \) dos.\$10-dis 50 \( \) 10 \( \) fray's adj. Tool Handles, No. 1, \$12; No. 2, \$18 \( \) dis 25 \( \) 25 \( \) 30 \( \) 31 \( \) 70 \( \) 41 \( \) 70 \( \) 41 \( \) 70 \( \) 41 \( \) 70 \( \) 41 \( \) 70 \( \) 41 \( \) 70 \( \) 41 \( \) 70 \( \) 41 \( \) 70 \( \) 41 \( \) 70 \( \) 41 \( \) 70 \( \) 41 \( \) 70 \( \) 41 \( \) 70	4 4
# 418. Henry's Combination Haft.  # 40s. # 4	80 K
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# xee.   Makers   Brands   Brands   Brands   Brands     First quality	0200000
108. 10 10 20 20 20 20 20 20 20 20 20 20 20 20 20	8
Over 10 sets. dis 10x5 Dag Holders. dis 60 Ba mecs. pring Ba'ances dis 60 mm.n 24 pring Balances dis 60 hatillon's Spring Balances dis 60 hatillon's Circular Spring Balances dis 60	5
dand-   Light Brass   dis 75&10 & 75&10 & 5   Extra Heavy   dis 65&10 & 70   White Meta    dis 70 & 70&10   Silver Chime   dis 25&10 & 5   Globe (Cone's Patent)   dis 25&10 & 5	
Gong, Abbe's dis 25&10 @ 35* GONG YARNEE dis 40&10 @ 50* GONG YARNEE dis 40&10 @ 50* GONG YARNEE DIS 50* G	200

rrent <b>Har</b> awa	
Common Wrought	(a) 33 x 34
Tire	70 % 15 % 15 % 15 % 15 % 15 % 15 % 15 % 1
fennings. 0.5.00 0.75. dis45@45.6  Other Machines. 2.35 2.75. 3.6  Phillips Pat, with Augers 7.00 7.50. 3.7  Phillips Pat, with Augers 7.00 7.50. 3.7  Bow Fins. 3.7  Gumason. Beckley & Co.'s, Nos 1 and 2—  dis 60&10 @ 60&10 & 60&1	55 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
Broilers	Bi W O Gi
Fast Joint, Narrow	To Green William Ville School Charles
Marticle	S Bress Bress Rais Rais Rais Rais Rais Rais Rais Ra
Companies   Comp	Per E Kin Stal Kin Dun

ui	rrent <b>Hardwa</b> i	re Prices,	26h	temper	0, 100	0.
	Common Wrought	O Carpet Stretchers. Cast Steel, Pollshed. Cast Iron, Steel Points. Socket		16 kegs, W B	No. 54 to Flour, CF. 150 gr. F. FF. 4 # 234# 5 # 334# 5 # 5 #	Hatchers List Jan. 1, 1886.   Isaiah Hlood.   dis 85 @ 4 Hunrs Shingling Lath and Claw   dis 40 & 6 Hunr's Broad   dis 40 & 6 Hunr's Broad   dis 40 & 6 Hunr's Feroad   dis 40 & 6 Hunr's   dis 40 & 6 Hu
18 25 % . 54¢ 28¢ 30¢	Call	Carpet Sweepers.  8 Bissell No. 5.  9 Bissell No. 7 New Drop Pan.  Bissell No. 12 Hall Sweeper.  Grand Rapids.  Crown Jewel.  Magic  Jewel  Mystic.	# dos \$17.00 # doz \$19.00 # doz \$36.00 # doz \$27.00 0. 2, \$19, No. 3, \$20 # dos \$15.00 # doz \$17.00	Escutcheon Pins. Iron and Brass, list Nov 11, 186 Escutcheons. Door Lock	discounts as Door Locks dis 60 @ 60&10 \$ dis 25	Sargent & Co.
45¢ 56¢ .\$1.60 0&2 % 5&2 % 0&2 % 0&2 % addi-	\$xtrs	h. Garland Gueen, with band. G		Star. Frary's Patent Fetroleum. West's Patent Key. Anchor Lock. Metallic Key. Leather Lined. Cork Lined. J. Sommer's Best Block Tin Ke J. Sommer's Cork Lined, 1st qu J. Sommer's Dolamond Lock. Self Measuring, Eneryise. Self Measuring, Lane's. Self-Measuring, Victor.	dis 55&10 @ 60&10 % dis 70 @ 70&13 % dis 40 %	Electric. \$\psi\ \ \text{doz} \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
is 2 % is 2 %	Agonal	"Giant" Truck Casters	1886, dis 50&10 6 50&10&5 % 	Files.  Files.  Domestic— Best brands. Good brands Fair brands.	dts 60&5 @ 60&10 \$ dis 60&10 @ 60&10&5 \$dts 60&10&0 \$	Rolled Raised
5&2 % 5&2 % 5&2 % 5&2 % 5&2 % 5&2 %	3arbed, % in. and larger.       \$\Pi\$ \$8 \circ 8 \cdot 8 \cdot 6 \cdot 8\$         3arbed, % in.       \$\Pi\$ \$0 \cdot 9 \cdot 6 \cdot 6\$         Blocks.       \$\Pi\$ c, list Ap. 17, '85.       \$\dis 60 \circ 6 \cdot 6\$         Tackie Blocks.       \$\Pi\$ c, list Ap. 17, '85.       \$\dis 60 \cdot 6\$         Belts.       \$\dis 50 \cdot 6\$	t Uhain.  Trace, 6½-10-2. Eng. sizes ♥ pair 7  Trace, 6½-10-3. Eng. sizes ♥ pair 8  Trace, 7-10-2. Eng. sizes ♥ pair 8	18 18 18 18 18 18 18 18 18 18 18 18 18 1	Heller's Horse Rasps.  Inported: J. & Riley Carr Horse Rasps. J. & Riley Carr Horse Rasps. Moss & Gamble. Lit Butcher. Stubs. Flating Machines. Knox, 4½-inch Rolls. Knox, 4½-inch Rolls. Eagle, 3½-inch Roll. Eagle, 3½-inch Roll. Crown, 4½-inc, 83,50:6-in, 84.00; Crown Jeylin, \$3,50:6-in, \$4.00; Crown Jeylin, \$3,50:6-in, \$4.00; Domestic Fluter. Geneva Hand Fluter. White Me Crown Hand Fluter, Nos. 1 115;	at April 1, 1883, dis 15 % Butcher's list, dis 20 % Stubs list, dis 25 % 30 % \$1.25 each \ dis 25 % \$2.15, dis 25 % \$2.15, dis 25 % \$2.16, dis 25 % \$3.10, 26.50 each, dis 35 % -in, 26.50 each, dis 35 % -in, 26.50 each, dis 35 %	Geer's Spring and Blank Rutts   dis 10
\$1.75 \$2.80 \$2.80 \$2.80 \$2.80 \$2.80 \$13.60 \$13.60 \$10.60 \$15.60	Cast Iron Barrel, Square, &c dis 70 @ 70 & 5 Cast Iron Shutter Botte dis 70 @ 70 & 5 Cast Iron Chain (Sarrent's list) dis 68 & 10 [res* Fatent Door Bolts dis 68 & 10 [res* Fatent Door Bolts dis 68 & 10 [res* Fatent Door Bolts dis 70 @ 70 & 5 Wrought Barrel dis 70 @ 70 & 5 Wrought Square dis 70 @ 70 & 5 Wr's Shutter, all Iron, Stanley's list dis 60 & 10 Wrought Shuter, Sargent's list dis 60 & 10 Wrought Shuter, Sargent's list dis 60 & 10 Wrought Sunk Flush, Stanley's list dis 60 & 10 Wrought Sunk Flush, Stanley's list dis 60 & 10 Wrought Sunk Flush, Stanley's list dis 60 & 10 & 10 & 10 & 10 & 10 & 10 & 10 &	Covert Halter, Hitching and Breast. Covert Traces. Oweld Halter Chain (old list). Galvanised Pump Chain. Jack Chain, Iron. Jack Chain, Brass. Chails.	dis 40&2 % . dis 45 % . dis 45 % . dis 45 % . dis 75 @ 75&10&5 \$ . dis 75 @ 75&10 \$	American, 5-in., \$3; 6-in., \$3,40:7 Domestic Fluter. Geneva Hand Fluter, White Me Crown Hand Fluter, No. 18,15; Shepard Hand Fluter, No. 180 Shepard Hand Fluter, No. 95 Clark's Hand Fluter, No. 96 Clark's Hand Fluter and Sad Iron. Buffalo Fluter and Sad Iron. Fluting Sciences. Fly Traps.—Paragon.	-in, \$4.50 each, dis 35 \$ \$1.50 each, net tal. \$\pm\$ dos \$12, dis 25 \$ \$12.50 : \$310. dis 30 \$ \$\pm\$ dos \$13.50, dis 40 \$ \$\pm\$ dos \$11. dis 40 \$ \$\pm\$ dos \$11. dis 40 \$ \$\pm\$ dos \$10.00, dis 334 \$ \$\pm\$ dos \$10.00, dis 10 \$ \$\pm\$ dos \$10.00 dis 10 \$	Buckman's   dis 25
20 % 25 % 10 % 10 % 16.75 18.00 12.00 16.00 16.00	Wrought B. K. Flush, Com'n Stanley's life. dis 505412 (422 Com. list June 10, '84. dis 75412 (422 Genuine Eagle, list Oct. '84. dis 75410 (4754 1045 Phila. pattern, list Oct. '7, '84. dis 75410 (4754 1045 S. B. & W. old list.	Red	₩ gro 12¢ @ 121/4¢	Forks. —Hay, Manure, &c., A. Hay, Manure, &c., Phila. list Plated, see Spoons.	880. list.dia 60&10&10 4	Hoes.   Handled
13.00 16.00 16.50 14.00 2.50 16.00 5.00 4.50 2.50 4.50 4.50	Tire-   Common, list Feb. 28, 1883.   dis 65&10     P. C. B. & N. Co., Empire, list Feb. 28, 1883. dis 65&10     P. C. B. & N. Co., Experione, Phil. list, Oct. 784 dis 829-8     P. C. B. & N. Co., Norway, Phil. list, Oct. 784 dis 809-8     Am. S. Co., Norway, Phil. list, Oct. 784 dis 809-8     Am. S. Co., Eagle, Phil., list Oct. 16, 784 dis 809-8     Am. S. Co., Philadel, list, Oct. 16, 784 dis 829-8     Am. S. Co., Philadel, list, Oct. 16, 784 dis 829-8     Am. S. Co., Philadel, list, Oct. 16, 784 dis 829-8     Am. S. Co., Bay State, list Feb. 28, 783 dis 60-810     R. B. & E. Mfg. Co dis 60-810     Stove and Flour-   Sto	Tanged Firmers, Butcher's, Tanged Firmers, Spear & Jackson's. Tanged Firmers, Buck Bros. Chucks. Beach Fatent. Beach Fatent. Danbury. Cach #6.0	\$4.75 @ \$5.00 to £	Freezers. Ice-Cream. Leading Goods. Fruit and Jelly Presses. Enterprise Mg. Co		Magic   # 0.05 \$4.7
10 %	## 8546 @ 8546 ## 8546	rovidence rool.co.'s wrongst Iron Adjustable, Gray's, Adjustable, Snow's, Adjustable, Snow's, Adjustable, Snow's, Adjustable, Hammer's, Adjustable, Stearns', Cabinet, Sargent's, Carliage Makers', Sargent's, Ebernard Mfg, Co. di	dis 20 %	Wire, low list. Wire. Wheeler, Madden & Co. Wire. Morse's Wire. Brown & Sharpe's. Gimlets. Nail and Spike. "Eureka " Gimlets. "Dumbon " Gimlets. Double Cut, Shepardson's. Double Cut, Ives. Double Cut, Jouglass' Free Grinder Grinde		Moore's " Differential Pulley Block
25 x 80 x 80 x 40 x 80 x	How Films  Jumason. Beckley & Co.'s, Nos 1 and 2—  dis 60&10 @ 60&10&5 \$  Gumason. Beckley & Co.'s other Nos. dis 70 @ 70&10 \$  Jargent & Co.'s	Axio Brid Spring Bar, Norway Iron Common Axie Cile. Wrought-Iron Felloe Cilps Steel Felloe Cilps Cockeyea. Cockeyea. Hardware list Coffee Mills	dis 65&2 \$	Sargent's Patent Reading Hardware Co Hack Saws.—See Saws.	dis 33½&10 \$	Stove Hollow-Ware, Grounddis 50&10@50&10@50   Stove Hollow-Ware, Uncrounddis 60&50@60&10   Enameled and Tinned Hollow-Ware—   Kettlesdis 50@50@60&10   Oval Bollers, Saucepans and Glue Pota di. 10 @ 35   Grav Enameled Waredis 10 @ 40&5   Agate and Granite Waredis 50 @ 50&5   Rustless Hollow-Waredis 50 @ 50&5   Galvanized Fea-Kettles—  Inch
	Sarber's, Nos. 30 to 35.   dis 50 s	Bemis & Call Co.'s Dividers.  Bemis & Call Co.'s Compasses & Calip Bemis & Call Co.'s Wing & Inside or Or Bemis & Call Co.'s Double.  Bemis & Call Co.'s (Call's Patent Inside	ersdis 50&5 % cutside.dis 50&5 % cutside.dis 50&5 % cutside.dis 50&6 % cutside.dis 50&	Antiera.—Covers's Pat. 4, Jul Overs's Hemp Horse and Cattle Overs's Jute Horse and Cattle Tencely's Pat. Adjustable Hemp Kencely's Hemp and Jute E Ties.  Hammers.  List Dec. 1, Dency's, new list. March. 1883 lastford Hammer Co. 's Nail Han unfalo Hammer Co.  Hammond & Son.  Lumason & Beckley.	1885, dis 25 @ 25&10 1	
0 % A 0 % A 0 % A 0 % P	Sartholomew's. Nos. 117. 118, 119	Bradley's. Barton's. L. & I. J. White. Albertson Mfg. Co. beatty's.	dis 20 \$ \$ \$dis 20@20&5 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	former. fagmetto Tack. Nos. 1, 3, 4, 2, 25, 1, 5 telson Tool Works former & Nobles. grices & Flamb. A. E. Nail ecc., Stow & Wilcox. argent's filti son's Smiths' leary Hammers and Sledgesdi Hand Cuffs and Leg Irons rovidence Tool Co. Hand Cuffs.	10466 @ 116 P 5 in 60&10 @ 60&10&5 \$	Bird Cage. Sargent's list.   dis 60&10&10 s     Bird Cage. Reading.   dis 60&10&10 s     Clothes Line. Sargent's list   dis 60&10&10 s     Clothes Line. Reading list.   dis 60&10 s     Celling. Sargent's list.   dis 60&10 s     Celling. Sargent's list.   dis 60&10 s     Cost and Haf. Sargent's list.   dis 60&10&10 s     Cost and Haf. Sargent's list.   dis 60&10&10 s     Cost and Haf. Sargent's list.   dis 60&10&10 s     Cost and Haf. Sargent's list.   dis 60&10 s     Tought Iron-   Cotton Pas.   M. T. Mallet & Handle W'ks)   dis 80 s     Tassel and Picture (T. & S. Mfg. Co.)   dis 60 s     Wrought Staples, Hooks, &c. See Wrought Goods
0% R 0% G	Regular list	Sandusky Tool Co. Corkscrews. Humson & Beckley Mfg. Co. Clough's Patent. Corn Knives and Cutters. Bradley's Wadsworth's Cradles. Grain Crew Bare. Cast Steel. Iron, Steel Points. Curry Combs.	dis 404:54:2 %	rovidence Tool Oo, Leg Irons, so ower's Improved Hand Cuffs: 2 % dos, \$48; Nickeled, \$57; 3 Ha dos, \$72; Nickeled, \$54. Handles, ron, Wrought or Cast.— Deep or Thumb.	4 da 60&1 da 10 g F Handa, Polished, anda, Polished, F Manda, Polished, W Manda, Polished, Manda,	Bench Hooks
0 % B	Inion Nut Co	Curry Combs. Curry Combs. Fitch's dos 10.50&1 Rubber. Curtain Plus Silvered Glads. White Enamel. Cutlery. Beaver Falls and Booth's. Wostenholme.  Dividery.—See Compasses.	net	Nos	# dos. 70s net #1.63; Plate, #1.10; Det Oz. #1.40, dis 10&10 s Cli Cli Es #40&10 @ 40&10&5 s	Horse Nalls.  Nos. 6 7 8 9 10  sable \$\frac{1}{2}\$ \$\fr
* * * * * * * * * * * * * * * * * * * *	Fast Joint, Narrowdis 60&& @ 60&10&5 \$ Fast Joint, Broaddis 60&& @ 60&10&5 \$ Loose Joint, Japanned Loose Joint, Japanned Loose Joint, Jap, with Acorns Harrisament Butte Harrisament Butte Loose Pin, Acorns Loose Pin, Acorns Loose Pin, Acorns Loose Pin, Acorns Trought Iron—	Deg Cellars.  Embossed Gitt, Pope & Stevens' list. Leather, Pope & Stevens' list. Bear Pope & Stevens' list.  Dear Warners' list. Dear Warners' list. Dear Warner's Rod, regular size. Gray's. Bee Rod. Gray's. Gem Coil, list April 19, 1886. Star (Coil), list April 19, 1886. Champion (Coil). Champion (Coil). Champion (Coil). Cowell's. No. 1, # Gos \$18.00; 80 g. Rubber, complete.  # dos \$18.00; 80 g. Rubber, complete.	dia 30&10 s dia 40 s dia 40 s dia 40 s dia 40 s dia 20 s dia 20 s dia 40&10@50 s dia 10 s dia 20 s	Hammer, Hatchel. 4.xe, siedge, Brad Awi, Hickory Firmer Chisel, assorted. Hickory Firmer Chisel, large. Apple Firmer Chisel, large. Apple Firmer Chisel, large. Socket Firmer Chisel, assorted. Socket Firmer Chisel, assorted. Socket Firming Chisel, assorted J. B. Smith Co. 19 Pat. File. Assorted. File,	OCR 2.75 dia 40 a Ca Cos 5.00 dia 40 a Str Cos 7.00 dia 40 a Str Ca Str Ca Str N.J. P set \$1.25 pet	60e. W h 20e 20e 21e 21e 10e 10e 10e 10e 10e 10e 10e 10e 10e 1
\$0 \$	Inside Blind, Lightdis 65&2 1	Shaw Door Check and Springdis	25 @ 20 @ 35 %	ross Cut Saw Handles— Atkins' No. 1 Loop. F pair, 30¢; and No. 4 Reversible, 22¢. Boynton's Loop Saw Handles	No. 3, 22#: No. 2	
1022	Reading's Gravity	Elliot's Door Check and Spring.  Orawing Knives.  Witherby and Douglas.  P. S. & W.  New Haven and Middlesex.  Merrill  Watrous.  L. & I. J. White.  Bradley's.  Adjustable Handle.  Wikinson's Folding.  Orills and Drill Stocks.  Blacksmiths'  Blacksmiths'  Breast. P. S. & W.  Breast. P. S. & W.  Breast. Wilson's.	h, \$1.50 @ \$1.60 Re ch, \$7.50, dia 20 a St	Champion Hangers  In Door, New England.  In D	dis 40 \$ 1	mbination ice Tools. \$\psi\$ dos \$2.00 \ \ \psi\$ me fee Pick and Tonss. \$\psi\$ gross \$5.00, dis \$5.60, dis \$5.60 \ \ \psi\$ sole is \$\psi\$ ger's I/ghtning fee Chisel. \$\psi\$ gross \$28.50 \ \ \end{arguments} ee Cream Freezers. \$\psi\$ gross \$28.50 \ \end{arguments} ee Croags. \$\psi\$ dos \$4.00, dis \$25.210 \ \psi\$ milv \$\psi\$ dos \$2.75, dis \$26.225 \ \psi\$ ack Screws. \$\psi\$ escrews. \$\psi\$ dos \$2.75, dis \$26.225 \ \psi\$ ack Screws. \$\psi\$ dos \$2.75, dis \$26.25 \ \psi\$ escrews. \$\psi\$ dos \$2.75, dis \$26.25 \ \psi\$ ack Screws. \$\psi\$ dos \$2.75, dis \$26.25 \ \psi\$ and \$2.25 \ \psi\$ max \$1.00 \ \psi\$ inclusive. \$\psi\$ \$2.25 \ \psi\$ net use larger than \$1\$ inches. \$\psi\$ \$\psi\$ \$2.25 \ \psi\$ escrews. \$\psi\$ \$
	Shepard a Champion Gravity, No. 75, 1018 808210 3 Shepard a "O. S." and "Actine" Luli & Porter dis 70&10&5 Shepard's "Queen City" Reversible. dis 70&10&5 Clark's Improved Shutter Hinge, Nos. 0, 1, 1%, 2, 2%, 5	Breast, Wilson's Breast, Millers Falls. each, \$2,50, d Ratchet, Merrill's. each, \$2,50, d Ratchet, Merrill's. Ratchet, Ingersoll's Ratchet, Parker's Ratchet, Parker's Ratchet, Whitney's Ratchet, Woor's Tripte Action. Whitney's Band Drill, Plain, \$11.00; \$12.00. Wilson's Drill Blooks. Automatic Boring Tools. eacl	dis 20 % Be dis 20 % Be dis 20 % S Du dis 20 % Sdis 20 % 25 % C dis 20 % Be dis 20 % B	st Anti-Friction plex (Wood Track) rry's Patens. # dos. pr., 15 15 16 17 18 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19		ACYB.  k Asso'n list Dec. 18. 1885dis 45&2@45&75&2 cte. Cabinet, Frunk and Fadlock
Bes Ne All	atty's dis S31465 \$  \$16.50 19.00 21.50 24.00 27.00 30.00 33.50 36.50  we haven Edge Tool Co.'s dis 40 \$ bertson Mfg. Co. dis 3314 \$ 3314.5 \$  alipera.—See Compasses.	Morse. Standard. Syracuse Cleveland. Williams Drill Bits.—See Augers and Bits. Drilping Pans.	n. \$1.75 @ \$1.85 Fel	Upee.  chards' . lots of 50 sets dis 20&10 ne s Steel Anti-Friction. ne s Steel Anti-Friction. struct's Patent arms' Anti-Friction ultices terican ler & Wooster, No. 1, 62%6; No. 2 ragon, Nos. 1, 2 and 3. seeni	# eet \$4.50, dis 20 \$ Wir \$2.50 \$ Wir \$2.5	non's Putcher Knives     dis 25 @ 30 f       es" Butcher Knives     dis 25 s       hols Butcher Knives     dis 40k10/s       es 'Shoe Knives     dis 20 s       es' Bread Knives     dis 20 s       an's Shoe and Sread Knives     dis 20 s       dell Co., Butcher, Shoe, Bread, &c.     dis 20 s       and Siraw     See Hay Knives
Am Duj Lyi No. No. Eur Sar Sta Spr Wo	nerical # dos 25¢, dis 15 @ 20 \$ man * # dos 25¢, dis 15 @ 20 \$ man * # dos 25¢, dis 15 @ 20 \$ man * # dos 25¢, dis 20 \$ 1 \$ man * # dos 25¢, dis 20 \$ 1 \$ man * # dos 22, dis 56 @ 60 \$ 1 \$ 5 \$ man * # dos 22, dis 45 @ 50 \$ 1 \$ man * # dos 25¢, dis 10 \$ man * # dos 25¢, dis 15 \$	Les Benters.  Dover.  National.  F dos 8  Family T. & 8. Mfg. Co.).  Standard (Standard Co.)  Kingston (Standard Co.)  Acme (Standard Co.)  Acme (Standard Co.)  Rapid (Standard Co.)  Rapid (Standard Co.)  Rapid (Standard Co.).  Friumph (T. & 8. Mfg. Co.).  Advance No. 1  Advance No. 2	4.50, die 3316 f \$17.00@418.00 Her \$17.00@418.00 Fit \$2.00@418.00 Fit \$2.00@418.00 Fit \$2.00@418.00 Fit \$2.00@418.00 Fit \$2.00@418.00 Fit \$2.00@418.00 Fit	A runes Sunse chor CT & S. Mfg Co.). nshaw's ch's (Briscol). tehkins drews gent's Patent Guarded. man, old list. man, Sargent's 1886 list. cert.		
Dor Cha	versal	agrance, No. 2. Bryant's. Ayres' Spiral		ert, New Patent	dis 50&2 % Pict	ure, Remacte. dis 36-5 5 tter. Porcelain. dis 65-20 5 rriage. Japannes gross 80e, dis 90-210 8

	GIIINGI	0,	10	U
6 6	Electric Bell Sets.—W Emery. No. 4 to 46 gr. Kegs. Ph. 4 c	No. 54 to	Flour,	20 % CF.
6	34 kegs, # D 484¢	150 gr. 4 # 434# 5 # 7 #	214¢ 214¢ 314¢ 5 ¢	
	Enameled and Tinne	d Ware.	-See Holl	ow.
-	Escutcheon Pins. Iron and Brass, list Nov 11, Escutcheons. Door LockSam Brass Thread Wood	6 discounts	0 @ 50&10s	cks
	Faucets.		dis 2	10 %
	Fenn's Patent Rubber Bal Fenn's Cork Stops. Star Frary's Patent Petroleum	1di	dis 33! dis 33! in 60 @ 60& iis 40&10&	5%
	Anchor Lock	*************	dis 4	5 %
	metalic key, Leather Lined. Cork Lined. J. Sommer's Best Block Tin I J. Sommer's Cork Lined, 1st J. Sommer's Diamond Lock. Self-Measuring, Enterprise. Self-Measuring, Lane's. Self-Measuring, Victor.	quality	dis 4 dis 5 dis 4 —dis 20&1	0%
	Self-Measuring, Lane's Self-Measuring, Victor Felloe Plates	₩ dos \$36.00 ₩ dos \$36.00	—dis 25&1 —dis 25&1 , ₩ № 6 @ 6	0 %
	Domestic— Best brands Good brands Fair brands Heller's Horse Rasps	dis 60 dis 60&10	&5 @ 60&1 @ 60&10& 10&10 @ 7	0 % 5 %
	Heller's Horse Rasps Imported— J. & Riley CarrL J. & Riley Carr Horse Rasps	ist, April 1,	dis 50&1	59
I	J. & Riley Carr L. J. & Riley Carr Horse Rasp Moss & Gamble Butcher Stube Fluting Machines	List April 1. Butcher's Stubs list,	1883, dis 1 8 list, dis 2 dis 25 @ 3	01
	Butcher Machines  Flucing Machines  Elucing Machines  Elucing Machines  Enox, 454-inch Rolls  Eagle, 356-inch Roll.  Eagle, 546-inch Roll.  Crown, 456-inch Roll.  Crown, 456-inch Roll.  Crown Jewel.  American, 5-in., \$2.6-in., \$3.60  Domestic Fluter  Crown Hand Fluter, White:  Crown Hand Fluter, No. 1. 116  Separat Hand Fluter, No. 80.  Clark's Hand Fluter, No. 80.  Clark's Hand Fluter and Sad Iro  Buffalo  Fluting Scissors  Fly Traps.—Paragon  Balloon.  Forks.—Hay, Manure, &c.	33.25 e	ach dis 3 2.15, dis 3 2.85, dis 3	5 %
	Crown, 436 in., \$3.50: 6-in, \$4.00 Crown Jewel. American, 5-in., \$3; 6-in., \$3.40 Domestic Fluter	); 8-in., \$6.50 .6-in., \$3.50 ; 7-in., \$4.50	each, dis 30 each, dis 30 each, dis 30 .50 each, n	5 % iet
	Grown Hand Fluter, White I Crown Hand Fluter, Nos. 1. \$16 Shepard Hand Fluter, No. 85. Shepard Hand Fluter, No. 110	1etal. # dos 5; 2, \$12.50; # dos \$1 # dos	5, \$10.dis 30 5, 30, dis 40 5, 31, dis 40	9
	Clark's Hand Fluter, No. vo Clark's Hand Fluter Combined Fluter and Sad Iro Buffalo	# dos \$15. n # dos \$1 # dos \$1	00, dis 334 5.00, dis 30 0.00 dis 10	4 4 4 4
	Fly Traps.—Paragon  Balloon.  Forks.—Hay, Manure. &c  Hay, Manure, &c., Phila. list.  Plated see Spoons	Asso. list.die	# doz \$1.	82 75
	Freezers, Ice-Cream.	dis 60	&2 @ 60&5	* 1
	Freezers. Ice-Cream. Leading Goods. Fruit and Jelly Presse Enterprise Mrg. Co. Henis. Fry Pans.	oss \$45, \$ de	10 @ 834 52 M @ M.	50
*******	Enterprise Mfg. Co.  Henis.	5 2.50 2.75 8	6 7 8 .25 3.75 4.1 dis 404:2	25 8
-	@ dos\$3.00 3.75 4.25 4.70	dis 5 5.25 6.00 7.	00 8.00 y.	M H H H H
-	Gauges. Wire, low list. Wire, Wheeler, Madden & Co.		die 60&10 .dis 10&10 dis 10	
-	Wire, Brown & Sharpe's Gimlets. Nail and Solke	ds	is 10 @ 20 s 50&10&5	S BB
-	Of Marking. Wire, low list. Wire, Wheeler, Madden & Co. Wire, Morse's Wire, Brown & Sharpe's. Glimleta. Vall and Spike. *Sureka "Gimleta. *Diamond "Gimleta. Double Cut, Shepardson's. Double Cut, Ives' Double Cut, Ouglass'. *Ree" Glime if etg.	dis 5	.dis 40&10 dis 45 0&10 @ 60	B B
	Glue 1 ets.	gross	\$12, dis 25 35@35&5	g I
New CE. New	Rec Glue I'ets. Trinned and Enameled. Trinned and Enameled. Trinned and Enameled. Trinned and Enameled. Trindates Fixtures. Trindates Fixtures. Trindates Fatest. Trindates Fatest. Trindates Fatest. Trindates Fatest.	a	dis 70&10	5 5
099	Halters.—Covert's Pat. 14 Jovert's Hemp Horse and Cattle fovert's Jute Horse and Cattle fencely's Pat. Adjustable Hem fencely's Hemp and Jute Hems.—List Dec. 18 Jovers.—List Dec	Ties. ap and Jute Horse and	dis 50&10 Cattle dis 50&10	8 8
M CH	Hammers. laydole's List Dec. 1 theney's, new list, March. 1883 lartford Hammer Co.'s Nail H	am'sdis	dia 20&10 9	10
BCHV	uffalo Hammer Co. Hammond & Son. lumason & Beckley.	dis 40	16 30 @ 35 18:10 @ 50 din 23 din 5	
RNVY	Farner & Nobles.  crkes & Finmb, A. E. Nail	1.00 KBQ 1.75.	dis 40&10 9	
SINH	orress agnetic Tack, Nos. 1,2,8,81.85, agnetic Tack, Nos. 1,2,8,81.85, agnetic Nobles, grkes & Finnib, A. E. Nail eck, Stow & Wilcox, argent's, 'liki son's Smiths', eavy Hammers and Sledges.	di 10% dis 60&10 @	335410 @ 114 P 2 6041045	
20	rovidence Tool Co., Hand Cuff	8, \$15,00 ♥ d	osdis 105	W
	ower's aley's improved Hand Cuffs:  \$\psi\$ dos. \$48; Nickeled, \$57; \$1 dos. \$72; Nickeled, \$74.  Handles.			GP
	Handles.  on, Wrought or Cast.— Door or Thumb.  Nos. 0 1 2 8 Per dos., 10.90 1.00 1.18 1.85 Rognin's Latches. Bronse Iron Drop Latches.  Chest and Lifting.  Indies, Wood— Saw and Planse Hickory Firmer Chisel, assorted.  Hickory Firmer Chisel, assorted.  Roppe Firmer Chisel, assorted.  Socket Franger Chisel, assorted.  Socket Franger Chisel, assorted.  Roger, large.  Socket Firmer Chisel, assorted.  Auger, large.  Patent Auger, 10va Patent Auger, 10va Patent Auger, Douglass' Patent Auger, Loop Baw Handles.  Atkins' No. 1 Loop, P. pair, 30  and No. 4 Reversible, 226.  Champion	1.50dia 6	0410410 1	Ho Ho Fis
	Bronse Iron Drop Latches. Jap'd Stere Door Handles—Nu no Plate, \$0.88.	ts, \$1.63; Pla	se, \$1.10; net te, \$1.10;	Au
9.	Chest and Lifting	dis 40&10 @	dis 70 \$	Cli Ess Pu Vu
1	Brad Awl. Hickory Firmer Chisel, assort Hickory Firmer Chisel, large. Apple Firmer Chisel, assorted.	ed gros	ETOMS \$2.00 IS 4.50 IS 5.00 IS 5.00 [ ]	No.
	Apple Firmer Chisel, large Socket Firmer Chisel, assorted Socket Framing Chisel, assorted J. B. Smith Co.'s Pat. File	ed gro	ns 5.00 = = = = = = = = = = = = = = = = = =	Chi Ne Sar Chi
-	Auger, large.	gross 5.00 gross 7.00	dia 40 @ 40&10 \$ dis 25 \$	Sta No.
i	Patent Auger, Swan's	4. No 9 99	\$1.00 net is 50&10 s	N.
-	and No. 4 Reversible, 22¢. Boynton's Loop Saw Handles. Champion		ø, din 60 s	Nat Not Wh
	rn Door, New England	dis 60æ104	10 @ 70 g 10 @ 70 g dis 55 g dis 55 g	Wo from
- h	milton Wrought Wood Track S. Wood Track	. Co. 's Har	dis 55 % . dis 65 % s 60&10 %	ACE Ros
11	max Steel Anti-Friction	***********	dis 50 \$	Cha Fan
h id id	allenge ring improved (Anti-Friction ftor, No. 1, \$15; No. 2, \$18.50; eritree	No. 3, \$18	dis 50 % is d5&10 % lis 50&2 % lis 50&5 %	K Bra Ena
h e	e "Boss". st Anti-Friction. plex (Wood Track)	s0&10	dia du \$dia du \$dia du \$dia du \$	Ena Loc Eas Hot
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el el	nith for wood rrack.  d's Steel Arm.  allenge.  ling improved (Anti-Friction tor. No. 1, \$15; No. 2, \$16.50; retrieve.  dider's.  's Noss' to Anti-Friction.  plex (Wood Track)	₩ set \$4.50	), dis 20 % dis 20 % dis 20 % 0	Par Par Wis
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is e H	aris And-Friends Littless crican Littless crican Agon, Nos. 1, 2 and 3 Agon, Nos. 4, 5 by and 6 Sount Larness Haaps Harbon Co. Links Hig Co. L	dis 60e	is 25&5 % a60&10 %	Door Door
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8 2 F.F.	0 g	Hatchers. — List Jan. 1, 1886.
30		Hunt's Shingling Lath and Claw
6	_	Yerkes & Plumb. Underhill Edge Tool Co. dis 40&5 @ 40&10 g C. Hammond & Son dis 40&10 @ 50 g
ollo	) W	Simmons
0&		Sargent & Co
&1 & 2	0 %	Shingling, Nos. 1 2 3.
8 4	0 %	Lathing Nos. 12 3.
331	6 % 5 %	Electric. \$\(\pi\\ \doz\\ \\ \\ \doz\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\
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£1.	3 %	Hinges.  Wrought Iron Hinges— Strap and T.  Screw Hook and 48, 10, 12 to 28 to 3146, 3346
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		Rolled Blind Hinges, Nos. 32 and 34dis 50&10 % Rolled Blind Hinges, Nos. 232 and 234dis 55&10 %
&10 &5 70	1%	Rolled Raised
18	9	Spring Hinges— Geer's Spring and Blank Rutts
15	7	Union Spring Hinge Co.'s list, March, 1886dis 20 9 Acme, Crown, Empire and U. S
30		American, Gem, and Star, Bronzednet Oxford, Bronze and Brassnet Barker's Double Actingdis 20&10 \$
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35 35 35 35	5	Chicago dis 30 % Gate Hingse- Western 29 dor 84 40 dis 55 %
	at l	N. E.
40	20 1	N. Y. State. \$\pi\$ doz \$5.00, dis 55 \\ Automatic. \$\pi\$ doz \$12.50, dis 50 \\ Exercise \$\pi\$
834 80	*	Seymour's
10 45	2	Gate Hingss—  Western
10 10	5 4 %	### Handled Garden, Mortar, &c
£5		Hadnated
14.5	*	Warren Hoe
8	8	Sandusky Tool Co., " "dis 60 @ 60&5 % Hubbard & Co., " dis 60&10 %
4.2	5 4	Hog Rings and Ringers. Add 60 @ 60&10 g Hill's Improved Ringers. P doz. \$5.50 @ 5.75
00	×	# dos. \$4.25 @ 3.50 #ill's Tongs # doz. \$5.50 @ 6.00 #ill's Rings # doz boxes. \$2.00 @ 2.25
109		rerrect sings. \$2.00 Perfect fingers \$2.50 Blair's Hog Ringers \$2.50 Blair's Hog Ringers \$4 doz. \$2.60
10	2	Blatr's Hog Rings.       \$\psi\$ doz, \$1.10 @ 1.15         Champion Ringers       \$\psi\$ doz \$2.25         Champion Rings, Double       \$\psi\$ doz \$2.25
20	ŝ	Brown's Ringers. \$\varphi\ \doz, \\$2.25\$ Brown's Rings. \$\varphi\ \doz, \\$1.26 \@ 1.35\$ Heleting Apparatus.
10 5		"Moore's" Hand Hoist, with Lock Brakedis 15 % "Moore's" Differential Pulley Block
10 1		Balz Pat # doz \$4; dis 25 %
5 1		
0 9		Kettlesdis 50&10 s Oval Bollers, Saucepans and Glue Pots di 30 @ 35 s
0 1		Again   Agriculture   Agricu
29		Galvanized Tea-Kettles- Inch6 7 8 9 Each556 60¢ 65¢ 75¢
25		Each
0 5		Simpson, Hall, Miller & Co
01		William Rogers Mfg. Co
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0%	1	Wrought Staples, Hooks, &c See Wrought Goods Bench Hooks See Bench Stops
5 %	1	Wire Coat and Hat, Gem, list April, 1886dis 45 %
3 (	9	Wire Screw Hooks and Eyes. See Bright Wire Goods
	N. F.	1945
og o∉ et	E	Wire Coat and nat. miles', the April, 1889 dis 46 s Belt dis 80 g. 80gg 5 s Wire Screw Hooks and Eyes. See Bright Wire Goods Frans 40 g. 82,00 Bush
et	A	Horse Nalis. 6 7 8 9 10  unable. \$\psi\$ 516 284 286 285 246 236 \text{-dis 25&10 } 8  llinton, Pin. \$\psi\$ 516 284 286 286 246 236 \text{-dis 25&10 } 9  llinton, Pin. \$\psi\$ 528 216 206 106 106 \text{-dis 25&10 } 9  llinton, Pin. \$\psi\$ 546 286 286 286 246 286 \text{-dis 25&10 } 9  llinton, Pin. \$\psi\$ 546 286 286 286 286 286 \text{-dis 25&10 } 9  llinton, Pin. \$\psi\$ 546 286 286 286 286 286 \text{-dis 25&10 } 9  llinton, Pin. \$\psi\$ 546 286 286 286 286 286 \text{-dis 25&10 } 9  ulnam \$\psi\$ 286 286 286 286 286 286 \text{-dis 25&10 } 8  ulnam \$\psi\$ 286 286 286 286 286 286 \text{-dis 25&10 } 8  lobe. \$\psi\$ 286 286 286 286 286 286 \text{-dis 25&10 } 8  orthwest'n, \$\psi\$ 286 286 286 286 286 286 \text{-dis 25&10 } 8  lambdam \$\psi\$ 286 286 286 286 286 286 \text{-dis 25&10 } 8  lambdam \$\psi\$ 286 286 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 \text{-dis 25&10 } 8  lambdom \$\psi\$ 286 286 286 286 -dis
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101	"	quently made.  Horse Shoes See Shoes, Borse.  Rubber
\$	N	Y. B. & P. Co., Standard
*	ZZ	ational 'ce Chisel.
-	NON	uniap's Ring Picks
THE PERSON	Le	e Malleta, Pick in bandle 4 doz \$1.25, dia 50&10 \$ se Axes, Small Cast or Mail \$4 doz \$1.25, dia 20&10 \$
THINKS	AR	tar. — * ** 50° 50° 21° 30° 10° 10° 10° 5.  "FE.—Concessions on above quotations are frequently made.  Horse Mades. — See Shoes, Rorse.  Hose, Rubber
1000	CI	ice Tenas. Lee Tenas. ampion, S. S. & Co
2 2	F	Jack Screws.—See Screws. 7 ettles.
XXX	81	rass larger than 17 inches 24¢ net
× ×	I c	R. CFS. ock Asso'n list Dec. 18. 1885dis 45&2@45&75&2 ggie, Cabinet, Trunk and Padlockdis 45&2
	HH	otenkiss' Brass Blauss
8 8 8	R	nameted and Tea Kettles
	Pa	rain's Rosewood or Cocobolo \$\psi\$ doz \$0.00, dis 40 \$\psi\$ \text{Knives}.  Sou's Putcher Knives
	AI NI	nes' Butcher Knives
	AE	nes' Bread Knives # dos \$1.50, dis 15 de 20 s oran's Shoe and Bread Knives
200	Ha	rain's Rosewood or Cocobolo \$\pi\$ dos \$0.00, dis 40 \$\frac{8}{k}\$ \text{Nives} \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
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Tubular, Lift Wire, No. 1, \$\pi\$ dos \$\ \text{cons}\$ (uards for Tubulars, add \$\pi\$ dos \$\ \text{carge, \$\pi\$}.75. \text{dis 15 \$\pi\$} 20 \\ Police, Small, \$\pi\$, 00; Med., \$\pi\$.25: \text{Large, \$\pi\$}.75. \text{dis 15 \$\pi\$} 20 \\ Porter is 16 k. k. \$\text{standard Machines.}\$ . \$\pi\$ 0 ds \$\pi\$ \\ Lawn Movers. Standard Machines \$\pi\$ 0 dos \$\pi\$ \\ Chesper Machines \pi\$ 0.00; 0 dis \$0.00 dis \$0	B
Lawn Mowers. Standard Machines. dis 50&5 % Chesper Machines. dis 50&10 @ 60 % Lemon Squeezers.  Porcelain Lined, No. 1.	BOLDE
Porcelain Lined, No. 1	1
Sammis', No. 1, \$5 : 2, \$9 : 12, \$18 \$\pi\$ doz. dis \$2\50 t0 = \\ Jennings' "Star" \$\pi\$ dox \$2.50 \\ The "Boss" \$\pi\$ dox \$2.50 \\ Dean's Nos. 1, \$\pi\$ doz \$0.50; 2, \$\pi\$, \$3.53; \$\pi\$.100 \\ Little Giant dis \$0 \pi\$ 06 \$\pi\$ \$\pi\$ \$\pi\$	11111
Little Giantdis 50 @ 50&5 %	I
King	I
Lines. Cotton and Linen Fish, Draper's. dis 50 % Draper's Chalk dis 60 % Draper's Mason's Linen, 84 ft., No. 1, \$1.2, No. 2, 81.75; No. 3, \$2.25; No. 4, \$2.75; No. 5, \$3.25. dis 25 % Cotton Chalk dis 55 %	
Cotton Chalk. 8(Iver Lake, Bra'ded, Nos. 0, \$6.00 No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50 % gross.	F
Masons' Colored Cotton	
Draper's Mason's Linen, 84 ft., No. 1, \$1.2c; No. 2, \$1.75; No. 5, \$2.2c; No. 4, \$2.75; No. 5, \$3.2c. dis 26 9 Cotton Chalk.  Silver Lake, Bra'ded, Nos. 0, \$6.00 No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50. 9 gross.  Silver Lake, Bra'ded, Nos. 0, \$6.00 No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50. 9 gross.  Masons' Linen, No. 3, \$6.15.0; No. 4, \$2; No. 44, \$2.50 Masons' Colored Cotton.  Mire Clothes, No. 18, \$6.75; No. 10, \$3.20; No. 20, \$4.75. Volume Cord, Samson Braided, 77.50 g doz. dis 20 5 Leoks. Padiceks. Cabluet Leoks. &c.  Looks, Padiceks, Cabluet Leoks. &c.  Door Looks, Latenes. &c. List. Dec. 18, 1885.  List. Dec. 18, 1885.  List. Dec. 18, 1885.  List. Por Looks, Latenes. &c.  Padice Many's Extension Cylinder' dis 60.22 5 Namy's Extension Cylinder' \$10.50 \$0 doz net Barnes Mig. Co. dis 40, \$7.50 \$10.00 \$10.	
Nimick & Brittan's Burglar-Froof Locks. dis 45&2 \$ Reading Hardware Co. (list Feb. 2 1885). dis 70 \$ Perkins' Burglar Proof. dis 80&25 \$ Plate. dis 334&2 \$	an m
8. Many's "Extension Cylinder" \$10.50 \( \) doz net Barnes Mgs. Co	GGBB
L. & C. Round Key Latches dis Ostro L. & J. Fint Key Latches dis 33-act of Romer's Night Latches dis 20 \$	の田田田田口
Taie new list	200
Seed's N. Y. Hasp Lock	E
Deltz, Nos. 51 to 61	E 00 mm
Champion "Night Latches dis 40 % vale dis 40 % vale dis 40 % vales of the 40 % vales	2810
"Champion" Cabinet and Combinationdis 3314 % Romer's	FFE
Mallory, Wheeler & Co List Dec. 28, 1884. Dis Vimick & Brittan Mfg. Co 70&10@70&10&10 \$ Wm. Wilcox & Co	SHO
Yale Lock Mfg. Co. s.	A
Romer's, Nos. 0 to 91	0
Horechariss dis 30 % 'Star' dis 5 % "Horse Shoe.' % dos. \$9 dis 40 % Sarnes Mfs. Co dis 40 %	Manak
Comers   C	2
Brown	BJJ
Steel Socket Peavles. \$\pi\$ doz \$\frac{2}{2}.00\\ Mall. Iron Socket Peavles. \$\pi\$ doz \$\frac{1}{2}.00\\ Cant Hooks, "blue Line" Finish \$\pi\$ dox \$\frac{1}{2}.00\\ Cant Hooks, Common F'nish \$\pi\$ dox \$\frac{1}{2}.00\\ Delta t Hooks Common F'nish \$\pi\$ dox \$\frac{1}.00\\ Delta t Hooks Common F'nish Common F'ni	B B B
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Cant Hooks, Mall. Socket Clasp Common Finish.  Cant Hooks, Clip Clasp, "Blue Line" Fin. # doz \$14.50 Cant Hooks, Clip Clasp, Common Finish. # doz \$12.00 Cant Hooks, Clip Clasp, Common Finish. # doz \$12.00 Hand Spikes.  # doz 6 ft., \$15.00; 8 ft., \$20 Fike Foles, Fike & Hook, 12 ft. 14 ft. 16 ft. 18 ft. 20 ft. # doz # \$11.50 12.50 14.50 17.50 21.50 Fike Foles, Fike only, # doz # 10.00 11.00 13.00 16.00 20.00	BE CRR
# doz	8
Pike Poles not Ironed, ♥     doz.     6.00 7.00 9.00 12.00 16.00       Setting Poles, ♥ doz.     14.00 15.00 17.00     ₩ doz \$18.00       wann Hooks.     ₩ doz \$25.50       Landing Blocks.     ₩ doz \$25.50	田田田田田
Landing Blocks	BST
skidding Tongs	200
Four-ounce bottles # dos, \$1.75; # gro. \$17.00 net	B
M   Hickory   dis 20&10 5	FV
Meat Cutters. 1 8 8 4 15 15 15 15 15 15 15 15 15 15 15 15 15	CMP
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T	, ;
Pencils Faber's Carpenters'high list, dis 50 \$ Faber's Round Gilt	M
Pencils Faber's Carpenters'   high list, dis 50 \$  *aber's Round Gift	Di Ei
Picks.         Picks.           Railroad, 5 to 6, \$11.00; 6 to 7, \$12.         dis 60 @ 60&10 g           Railroad, 5 to 6, \$12.00; 6 to 7, \$13.         dis 60 @ 60&10 g           Picture Nails.         Picture Nails.           Brass Head, Saryent's list.         dis 50&10&10 g           Brass Head, Combination list.         dis 50&10&10 g           Porcelain Head, Saryent's list.         dis 50&10&10 g           Porcelain Head, Saryent's list.         dis 40x10 g           P'loking From.         \$0 dos 55e no           Pipe.         Wrought From.         \$0 dos 55e no           L'a and under, Pialn.         dis 42½ g           L'a and onder, Galvanised.         dis 55 g           L'a and over, Galvanized.         dis 55 g           L'a and over, Galvanized	D
Brass Head, Combination list	AAAA
Pipe, Wrought Iron.       \$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\	A
15g and over, Plain dis 55 % 14g and over, Galvanized dis 37% % Boller Tubes dis 50 % Planes and Plane Irons.	WPP
Wood Planes—         dis 15&2 \$           Molding.         dis 15&2 \$           Bench. First Quality.         dis 20&2 \$           Bench. Second Quality.         dis 26&2 \$           Balley's (Stanley R. & L. Uo.)         dis 20&10 \$           Pone Planes.         dis 20&10 \$	PPR
Bailey's (Stanley R. & L. Co.)	RRBB
	Be
Plane Irons	
Plane Irons. Buck Bros	R
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5 18., \$13.50; No.4, 7 1m., \$21.00 \$\pi \dos \dis 20\pi 10\pi 35\frac{3}{2}\pi Humason & Beckley Mfg. Co	LINHH
Sureka Pifers and Nippers       .dis 40 %         Russell's Parallel       .dis 25 %         P. S. & W. Cast Steel       .dis 50 %         P. S. & W. Tinners' Cutting Nippers       .add 6 % dis 10 %	Be Be
Carew's Pat. Wire Cutters	AHD
5 in., \$13.50; No.4.7 in., \$21.00 \$\psi \text{dot} at \$20\text{10cg} 33\forall \$2\text{dot} at \$10\text{dot}	AAAM
Round or Square, 2 qt	Ci Bi
Fletcher Post Hole Augers \$\pi\$ dos \$36.00. die 20 \$  Eureka Diggers \$\pi\$ dos \$16 \@ \$17  Leed \$\frac{1}{2}\$ \$\pi\$ dos \$8.00 \@ \$9.00	HH
dia 33\6 @ 33\6 % 33\6 % 5 \$	000000
Schneidler # doz \$16 @ \$17  Ryan's Post Hole Diggers # doz \$24  Cronk's Fost Bars doz \$60, dis 50&5 @ 50&10 \$	Fi Sk Sk
Fletcher Fost Hole Augers. \$\psi\$ dos \$35.00 \text{disc} \$16.20 \text{ Stureka Digkers.}\$\$ \$\psi\$ dos \$\$35.01 \text{size} \$16.20 \text{ Stureka Digkers.}\$\$ \$\psi\$ dos \$\$3.01 \text{size} \$16.20 \text{ Stureka Digkers.}\$\$ \$\psi\$ dos \$\$3.00 \text{disc} \$35.00 \text{disc} \$10.00 \text{dosler's Hercules.}\$\$\$ \$\psi\$ dos \$10.00 \text{dosler's Host Charles }\$\$\$\$\$ \$\psi\$ dos \$10.00 \text{dosler's Host Hole Diggers}\$\$\$\$\$\$\$\$\$\$\$ \$\psi\$ dos \$16.00 \text{size} \$17.00 \text{disc}	A B
Disston's Combined Pruning Hook and Saw. # dos \$18.00	DESI
Antrim Combination	P
Japanned Screwdis 60210 %	DOD
Apanined Side	81 81 84
Empire Sash Pulley	S8 S8 K
Hay Fork, Tarbox Fat, Iron	R R CI
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Funches' Spout, Cheaper Goods dis 70 & 7025 & Funches' Spout, Cheaper Goods dis 70 & 7025 & 67 0 & 8025 & 67 0 & 8025 & 67 0 & 8025 & 67 0 & 8025 & 67 0 & 8025 & 67 0 & 8025 & 67 0 & 8025 & 8025 & 67 0 & 8025 & 8025 & 67 0 & 8025 & 8025 & 67 0 & 8025 & 8025 & 67 0 & 8025 & 8	W
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Milvets. Clack and Tinned Iron, Flat Head M Rivets (in packages and in bulk)	G
Iron Rivets (other than above) in bulk	9
of 7% @ 10 % from above prices.  Cupper Hivets and Burrs	
May	Jo
Reflects   Reflect   Ref	APB
Manila	Ti Se H
Sizal	Se At Di
Sisal, Hay Rope       \$\psi\$ \$\mathbf{10\\mathbf{f}}\$ \$\mathbf{e}\$         Sisal, Tarred Rope       \$\psi\$ \$\mathbf{n}\$ 10 \$\mathbf{e}\$         Sisal, Single Ply Lath Yarn       \$\psi\$ \$\mathbf{n}\$ \$\mathbf{e}\$         Oction Rope       \$\psi\$ \$\mathbf{h}\$ \$\mathbf{e}\$	VI H
Sisal.	Si
Fram A to 10 at factory # 100 % 82 95 (2 82 50	
eleason's Shield and Tollet	56
Combined Fluter and Sad Iron \$\psi\$ dos. \$15.00. dis 15 stores Reversible, Self-Fluter \$\psi\$ dos. \$24.00 net hinese Laundry (N. E. Butt Co.)	-
Mand Paper and Emery Paper. ist April 19, 1886	
Patent. White Cotton Braided, fair quality.  D 28e @ 29e  Ommon Russia Sash.  18e  18e	
able Laid Italian " 20¢ ndia Cable Laid " 14¢ liver Lake, A Quality, White	-
ilver Lake. B Quality, White	D
amson, Braided, White Cotton, 50¢ dis 20 © 20&10 \$ amson, Braided, Drab Cotton, 55¢ dis 20 © 20&10 \$ amson, Braided, Italian Hemp, 55¢ dis 20 © 20&10 \$ amson, Braided, Linea 80¢ dis 20 © 20&10 \$	
Sash Locks.  Mark's No. 1, \$10.00; No. 2, \$8.00 \$ gross	B
Interest	
Left Heating Left Heating Tailors' \$\psi\$ dos. 80.00 net left Heating Tailors' \$\psi\$ dos. 88.00 net left Heating Tailors' \$\psi\$ dos. 89.00 net left Heating Tailors' \$\psi\$ dos. 99.00 net left Heat	E
ommon Sense, Nickel Plated . \$\pi\$ gross \$12.00 net inversal . dis \$0 \pi\$ temposhall's Gravity . dis 90 \pi\$ temposhall's Gravity . dis 90 \pi\$ temposhall's Model	IN
ayson's Perfect. dis 50&10&5 @ 40 % tugunin's New and Improved Adjustable Saan Balances, list March, 1886. dis 331 % tugunin's New Saah Locks list March 1886.	
taguint's New San Locks, inst march, 1886. dis 33% \$\frac{1}{2}\$ toddard "Practical" dis 10 \$\frac{1}{2}\$ ves Patent	7
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10 %	Hurden's, Perkins', Phenix, at factory. \$3.75 Walker's Forged. \$3.75 Mule-Add \$1 \( \text{seg.} \) Shovels and \( \text{Spades.} \) Ames' Shovels, Spades, &c. list Nov. 1, 1885dis 20 \( \text{NotJobbers frequently give 5 \) 66 75\( \text{5} \) 82 \( \text{seg.} \)	
50 % 75¢ 55¢ 32¢	Note.—Jobbers frequently give 5 @ 7½ % extra on above.  Griffith's Black Iron	
ts. 30¢ 22¢	Griffith's C.S	
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25¢ 128¢ 10 %	Remington's (Lowman's Patent),dis 30&10 @ 40 % Rowland's, Black Iron	
10 % 25¢	Shot.  Drop, ♥ bag, 25 ₺ (2¢ off for eash in 5 days\$1.60  Drop, ♥ bag, 5 ₺	Marie Company
33¢ 40¢ 10 %	Shot.  Shovels and Tongs.  Shovels and Tongs.  Skeins, Thimble.  Western list.  dis 70&10@75 \$	
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10 % 10 % 25 %	Buffalo, S. & Co	
6.00	Stiver-Plated —  Meriden Brit. Co., Rogers dis 50&5 @ 50&10&5 € Reed & Barton dis 50&5 @ 50&10&5 € C. Rogers & Bros 50&5 @ 50&10&5 \$ Wm. Rogers MF. Co dis 50&10 & 60&10 & 60 € Simpson. Hail. Miller & Co dis 50&10 & 60 & 60 € Holmes, Booth & Haydens dis 50&10&6 @ 60 € Holmes & Edwards Silver Co dis50 @ 60 & 60 € Holmes & Edwards Silver Co dis50 @ 60 & 60 € H. & E. Silver Co. Strel Silver-Plated Feas.  \$15: Tables, \$30 dis 50 @ 50&5 € German Silver, dis 50 @ 50&5 € Serman Silver, Hail & Eton dis 50 @ 50&5 € Serman Silver, Hail & Eton dis 50 @ 50&5 € Serman Silver, Hail & Eton dis 50 @ 50&5 € Serman Silver, Hail & Eton dis 50 @ 50&5 € Serman Silver, Hail & Eton dis 50 @ 50&5 € Serman Silver, Hail & Eton dis 50 @ 50&5 € Serman Silver, Hail & Eton dis 50 @ 50&5 € Serman Silver, Hail & Eton dis 50 @ 50&5 €	-
\$21 \$7.50 2.30	Simpson, Hall, Miller & Co	
7.50 2.30 2.50 50 % 25 % 40 %	\$15; Tables, \$30	
10 %	Springs. Elliptic Concord, Platform and Half Scroll Squares. dis60&5 @ 60&10 \$	
10 €	Square and T Bevels   dis 60.85 & 60.810   Steel and Iron   dis 70.85 & 70.810.85   Steel and Iron   dis 70.85 & 70.810.85   Try Square and T Bevels   dis 60.810   Square and T Bevels   dis 60.810   Square and T Bevels   dis 45.810   Square and T Bevels   dis 20.810   Square and T Bevels   dis	
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10 %	Washita Slios, No. 1. Extra. \$\overline{\text{\$\psi}\$} \overline{\text{\$\psi}\$} \overline{\text{\$\psi}} \overline{\text{\$\psi}} \overline{\text{\$\psi}} \overline{\text{\$\psi}\$} \overline{\text{\$\psi}} \overline{\text{\$\psi}} \overline{\text{\$\psi}\$} \overline{\text{\$\psi}} \	
10 % 10 % 70 %	Arkansas Stone. No. 1, 6 to 9 in	-
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356 % 30 % 90¢	Gem. \$\pi\$ gro \$4.50, dis 10 \$\frac{1}{8}\$ Gold Medal. \$\pi\$ gro \$\pi\$.00, dis 25 \$\frac{1}{8}\$ "Mirror". \$\pi\$ gro \$\pi\$.00, dis \$-\frac{1}{8}\$	
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	Boynton's Noon Dav. # gro	
0 @	Clathering   Screw Flate   dis 10 & 10 & 20 & 20 & 5	
60 % 55 %	Tucks, Brads, &c. List. Sept 1. 1882, and supplement. Jan. 1. 1886 American from Carpet Tacks	
10 %	Swedes Iron Carpet Tacks	
10 % &5 %	Swedes Iron Upholsterers' Tacks. dis 70&10 % Tinned Swedes Iron Tacks. dis 70&10 % Tin'd Swedes Iron Upholsterers' Tacks. dis 70&10 %	
&5 % &5 % :10 % :75 %	Gimp and Lace Tacks	
70 % 50 % 35 %	Copper Finishing and Trunk Nais	
25 % 25 %	Hungarian Nails and Miners' Tacks. dis 60%5 5 Trunk and Clout Nails. dis 60%5 5 Tinned Trunk and Clout Nails. dis 60%5 5	
8.90	Chair Natls         dis 60&5 €           Common and Patent Brads         dis 60&5 €           Finned Capped Trunk Nalls         dis 45 €	
8.35	Looking-Glass Tacks	
6.10	Brush Tacks. dis 46 % Shoe Finders'. List June 1, 1886, dis 10&10 % Lining and Saddle Nalls, List Jan. 1, 1886: Silvered dis 30&10 \$	
6,70 7,00 5,00 6,70	Silvereddis 30\text{\text{\text{dis }}} 30\text{\text{\text{\text{\text{\text{elect Carpst Tucks}}}}} \)  Wakkey Hardware Co.'s Steet Carpst Tucks;  Dlam and Brand\text{\t	
by 1 by	Horse Shoe Brand. uniform wts. 10¢; tinned. 14¢ Horse Shoe Brand.double unif'm wts., 20¢; tin'd, 25¢ Double-pointed Tacks.	
&5 % ears 13.75	Jananned	
\$2 \$ \$5 \$ 10 \$	Common and sing	
314 % 80 % 85 %	Clark's	
10 %	Tap Horers.  Common and Ring dis 20410 s  Ives' Tap Borers Nos. 1, 2, 4—dis 15410 s  Ives' Tap Borers Nos. 13, 14—dis 15410 s  Ives' Tap Borers Nos. 13, 14—dis 25410 s  Enterprise Mig. Co. dis 20410 s  Clark's dis 335 & 35  Tapes. Measuring dis 25410 s  Spring dis 25410 s  Tapers Regular list dis 25 & 30 s  Thermometers Regular list dis 25 & 30 s  Thermometers dis 80 & 80&10 s	
40 %	Thermometers. The Case Skeins.—See Skeins. Thimble Skeins.—See Skeins. Ties, Baie. Steel Wire, Standard list	
22 % 22 % 22 % 22 %	Shears and Snips (P. S. & W.)	
70 s 12 s 00 s	tral Stamping Co., list June 1, 188d.	)
10 %	dis25&2 @ - f   Extras some     Pieced, S. S. & Co	
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-	Tobacco Cutters.  Interprise Mg. Co. (Champion)
1	Vood Bottom # doz \$5.00 @ \$5.25 dll Iron # doz \$1.25
1	Vilson's
1	Transom Litters
1	Transom Litters
	Refher's Improved Set Screw (Class 201)
1	shaw's
	Jame-
	Newhouse   dis 35 t   One!da Pattern
1	Mouse and Rat— Mouse, Wood, Choker ₹ doz holes, 15¢
	Game, Blake's Patent
	Mouse, "Bonanza" F gross \$10 net Mouse, Delusion F gross \$18.00, dis 15 %
	Rat, "Decoy"₩ gross \$10.00, dts 10 % Ideal₩ gross \$10
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i	othrop's Brick and Plasteringdis 20&10:630 \$ teed's Brick and Plasteringdis 20&10:630 \$ Disston's Brick and Plasteringdis 20&10:620&10&5 \$ Disston's Brick and Plastering
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1	auter and Cheese. dis 25 % Trucks, Wurchouse, &c. Penfeld Block Co.'s list, 1882. dis 40 % Tubes, Boiler.—See Pipe,
1	Tubes. Boiler.—See Pipe.
,	V lace. Solid Boxdis 50&10 @ 60 % Garattet—
ľ	Fisher & Norris Double Screwdis 15&10 & Stephens'dis 25 &
	Parker's
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1	Bauer's Pipe Vises
	VV Per lb
20.00	Wagon Boxes.  Per lb.  Washer Cutters.  inith's Patent.  w dox \$12.00, dts. 20&10&10 x 00nnovs.  w dox \$12.00, dts. 20&10&10 x 10 x 10 x 10 x 10 x 10 x 10 x
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	Washers See Nuts and Washers.
	Washers See Nuts and Washers.
- Marie 100	Washers.—See Nuts and Washers.       P h 3/4¢         Wedges.—Iron.       P h 3/4¢         Well Buckets. Galvanized.       \$3.50:14 at. \$4.50         For Clad.       P dos., 14 (4, \$5, dis 40 as 40 as 40 as 50
- Marie 100	Washers.—See Nuts and Washers.       P h 3/4¢         Wedges.—Iron.       P h 3/4¢         Well Buckets. Galvanized.       \$3.50:14 at. \$4.50         For Clad.       P dos., 14 (4, \$5, dis 40 as 40 as 40 as 50
- Marie 100	Washers.—See Nuts and Washers.       P h 3/4¢         Wedges.—Iron.       P h 3/4¢         Well Buckets. Galvanized.       \$3.50:14 at. \$4.50         For Clad.       P dos., 14 (4, \$5, dis 40 as 40 as 40 as 50
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- Marie 100	Washers.—See Nuts and Washers.       P h 3/4¢         Wedges.—Iron.       P h 3/4¢         Well Buckets. Galvanized.       \$3.50:14 at. \$4.50         For Clad.       P dos., 14 (4, \$5, dis 40 as 40 as 40 as 50
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- Marie 100	Washers.—See Nuts and Washers.       P h 3/4¢         Wedges.—Iron.       P h 3/4¢         Well Buckets. Galvanized.       \$3.50:14 at. \$4.50         For Clad.       P dos., 14 (4, \$5, dis 40 as 40 as 40 as 50
- Marie 100	Washers.—See Nuts and Washers.       P h 3/4¢         Wedges.—Iron.       P h 3/4¢         Well Buckets. Galvanized.       \$3.50:14 at. \$4.50         For Clad.       P dos., 14 (4, \$5, dis 40 as 40 as 40 as 50
- Marie 100	Washers.—See Nuts and Washers.       P h 3/4¢         Wedges.—Iron.       P h 3/4¢         Well Buckets. Galvanized.       \$3.50:14 at. \$4.50         For Clad.       P dos., 14 (4, \$5, dis 46 as 46 as 46 as 60
- Marie 100	Washers.—See Nuts and Washers.       P h 3/4¢         Wedges.—Iron.       P h 3/4¢         Well Buckets. Galvanized.       \$3.50:14 at. \$4.50         For Clad.       P dos., 14 (4, \$5, dis 46 as 46 as 46 as 60
- Marie 100	Washers.—See Nuts and Washers.       P h 3/4¢         Wedges.—Iron.       P h 3/4¢         Well Buckets. Galvanized.       \$3.50:14 at. \$4.50         For Clad.       P dos., 14 (4, \$5, dis 46 as 46 as 46 as 60
- Marie 100	Washers.—See Nuts and Washers.       P h 3/4¢         Wedges.—Iron.       P h 3/4¢         Well Buckets. Galvanized.       \$3.50:14 at. \$4.50         For Clad.       P dos., 14 (4, \$5, dis 46 as 46 as 46 as 60
- Marie 100	Washers.—See Nuts and Washers.       P h 3/4¢         Wedges.—Iron.       P h 3/4¢         Well Buckets. Galvanized.       \$3.50:14 at. \$4.50         For Clad.       P dos., 14 (4, \$5, dis 46 as 46 as 46 as 60
- Marie 100	Washers.—See Nuts and Washers.       P h 3/4¢         Wedges.—Iron.       P h 3/4¢         Well Buckets. Galvanized.       \$3.50:14 at. \$4.50         For Clad.       P dos., 14 (4, \$5, dis 46 as 46 as 46 as 60
A 100 mm A	Washers.—See Nuts and Washers.       P h 3/4¢         Wedges.—Iron.       P h 3/4¢         Well Buckets. Galvanized.       \$3.50:14 at. \$4.50         For Clad.       P dos., 14 (4, \$5, dis 46 as 46 as 46 as 60
A 100 mm A	Washers.—See Nuts and Washers.       P h 3/4¢         Wedges.—Iron.       P h 3/4¢         Well Buckets. Galvanized.       \$3.50:14 at. \$4.50         For Clad.       P dos., 14 (4, \$5, dis 46 as 46 as 46 as 60
A 100 mm A	Washers.—See Nuts and Washers.       P h 3/4¢         Wedges.—Iron.       P h 3/4¢         Well Buckets. Galvanized.       \$3.50:14 at. \$4.50         For Clad.       P dos., 14 (4, \$5, dis 46 as 46 as 46 as 60
- Marie 100	Washers.—See Nuts and Washers.       P h 3/4¢         Wedges.—Iron.       P h 3/4¢         Well Buckets. Galvanized.       \$3.50:14 at. \$4.50         For Clad.       P dos., 14 (4, \$5, dis 46 as 46 as 46 as 60
A 100 mm A	Washers.—See Nuts and Washers.       P h 3/4¢         Wedges.—Iron.       P h 3/4¢         Well Buckets. Galvanized.       \$3.50:14 at. \$4.50         For Clad.       P dos., 14 (4, \$5, dis 40 as 40 as 40 as 50
- Marie 100	Washers.—See Nuts and Washers.       P h 3/4¢         Wedges.—Iron.       P h 3/4¢         Well Buckets. Galvanized.       \$3.50:14 at. \$4.50         For Clad.       P dos., 14 (4, \$5, dis 40 as 40 as 40 as 50
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A 100 mm A	Washers.—See Nuts and Washers.       P h 3/4¢         Wedges.—Iron.       P h 3/4¢         Well Buckets. Galvanized.       \$3.50:14 at. \$4.50         For Clad.       P dos., 14 (4, \$5, dis 40 as 40 as 40 as 50
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STATE OF THE PROPERTY OF THE P	Washers. See Nuts and Washers.   P h 3/4¢   Wedges Iron.   P h 3/4¢   Wedges.   P h 3/4¢   Wedges Iron.   P h 3/4¢   Wedges.   P h 3/4¢
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S ILLY I	Washers. See Nuts and Washers.   P h 3/4¢   Wedges Iron.   P h 3/4¢   Wedges.   P h 3/4¢   Wedges Iron.   P h 3/4¢   Wedges.   P h 3/4¢
S IIIII	Washers. See Nuts and Washers.   Washers.
S IIIII	Westers. See Nuts and Washers.   Westers.   Final   Westers.   W

# Nickel-Plating and Polishing Materials.

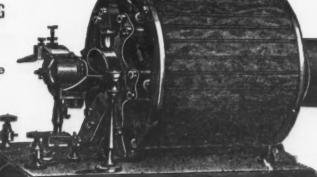
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THE AMERICAN

DYNAMO ELECTRO-PLATING MACHINE.

Best Plating Machine in the Market.

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EVERYTHING
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POLISHING LINE.



Largest Manufacturers
IN THE WORLD OF

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Nickel Anodes,
Nickel Salts,
Patent Muslin Buffs
Polishing Lathes,
Polishing Felt,
Polishing Rouges,
Poling Compositions,
Walrus Leather,
Wood Emery Wheels
Platers' Brushes,
&c., &c., &c.

Ves Patrices die 50 % die 50 %

Black, Lamp—Coach Paints.

Black Ivery Drop, fair.

Black Ivery Drop, fair.

# WHOLESALE METAL PRICES, September 8, 1886.

WHOLLOALL	METAL THOLO, O
METALS.	LEAD.—DUTY: Pig, \$2 \$9 100 D; Old Lead, 3c D: Pipe and Sheet, 84 事 D. Pig
I社ONDury: Bars, 8-10年 to 11-10年 賢 恵; vided that no Bar Iron shall pay a less rate of than 35%. Sheet, 11-0年 to 15-10年 賢 恵. Band, ard Scroll, 14 to 14-10年 智 恵. Railroad Bars w ing more than 25 恵 賀 yard, 7-10年 of 1年 賢 恵.	b: Pipe and Sheet, \$8 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
Standard American Fig fron.	eigh Sheet
Foundry No. 1 X. # ton \$18.00 @ Foundry No. 2 X. # ton 17.00 @ Gray Forge. # ton 15.75 @	18.50   ANTIMONY.   \$10 814 @ 9 17.50   16.25   16.25   SPELTER—Duty : Pigs, Bars and Plates, \$1
No. 1 Scotch Pig Iron. Carnbroe	W 100 IDS.
Coltness	20.00   21NC-Duty : Pig or Block, \$1.50   100   19.00   Sheet, 256   10.560   5.60   65.8
Gartsberrie	Zinc.—Open
No. 1 Scotch Pig Iron.	19.00   American, cash   496 \$\psi \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
Steel, at Eastern mills	55.00 N. P. U
Wrought, \$\psi\$ ton, from yard	Witt E. Market Wire.—Put up in 63 b bundles.
1 to 6 in. x% to 1 in	
Refined Iron:  % to 2 in.round and square. ( ) 2 2 2 2 1 to 6 in.x % to 1 in ( ) 2 2 2 2 2 2 1 to 6 in.x % to 1 in ( ) 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	.30¢ Charcoal
Bands—I to 6x8-16 to No. 12 D 2.80 @ 2 "Burden's Best." Iron, base price D 2.9 @ 8 Burden's "H. B. & S." Iron, base	50¢ "Fence Wire, Nos. 8 and 9. dls
Sheet Iron from Store.	Grape Wire. Nos. 10 to 14   Grape Wire. Nos. 10 to 15
	3. Stone or Weaving Wire.  bd. Nos 16 17 18 19 20 21 22 23 24 25 2
21 to 24	Centa 28 29 30 32 38 35 37 40 45 55 Nos. 16 to 18
28 # 15 3.37% @ 3.50 # 4 # B B. 2d qua	27 to 36
Nos. 10 to 16	Cast Steel, Steel Wire list
American Russia	Common Bronz High Low and Brass Brass Copper
STERL.—DUTY. Ingots, Bars, Sheets, &c., v	Brass   Brass   Copper
**STEEL.—DUTY. Ingots, Bars, Sheets, &c., v ued at 40 m or less, 45 f ad. val.; valued ab 46 and not above? 70 m., 36 m or less, 45 f ad. val.; valued ab 76 and not above 100 m or less valued ab 100	ove "19 and 20
&c., cold hammered or polished, in any way addition to ordinary hot rolling, 1/4 \$\mathbb{P}\$ in ad- tion to above; Steel Circular Saw Plates, 1\$\mathbb{P}\$	10 125 34 30 34 39 10 10 10 10 10 10 10 10 10 10 10 10 10
For American Steel, see Pittsburgh quotations	1 29
Chrome Steel	46
Magnet Steel English Steel.	** 34
### Raglish Steel.  Best Cast.	*** 30
Round Machinery, Cast b b 16 Swaged, Cast b b 16 Best Double Shear b b 15	Spring Wire, 2 cents per pound advance. Whitened Wire, 3 cents per pound advance. Flat, Square
German Steel, Best 10 10 3d quality 15 8 8	Spring Wire, 2 cents per pound advance. Whitened Wire, 3 cents per pound advance. Flat, Square and Half-Round Wire, 4 cents advance on Round Wire. Fancy Wire, not less than 10 cents advance on Round Wire. Spooling on one-pound Spools, 12 cents per pound extra. Spooling on ten-pound Spools or more. 2 cents per pound extra.
Sheet Cast Steel, 1st quality 15 10 10 2d quality 15 14 3d quality 17 10 124	Spools or more. 2 cents per pound extra.  MISCELLANEOUS TINNERS' STOCK.  Solder.
	16 & 16 & 16 & 15 & 15 & 16 & 16 & 16 &
16 ¥ D ; Bars. Block and right res.  \$ Banca	© No. 2 Solder
	Copper Rivets and Burrs
I X 10x14 225 sheets 6.25 (6 9.3 I X 12x12 225 sheets 6.25 (6 9.3 I X 14x20, 112 6.25 (6 9.3	
I C 10x14 225 sheets \$ box \$5.00 @ 7.0 1 C 12x12 225 sheets \$ 5.25 @ 7.0 15.1 C 20x25, 112 \$ 10.25 \$ 15.1 1 X 10x14 225 sheets \$ 6.25 \$ 9.2 1 X 12x12 225 sheets \$ 6.25 \$ 9.2 1 X 12x12 225 sheets \$ 6.25 \$ 9.2 1 X 12x20, 112 \$ 6.25 \$ 9.2 1 X 14x20, 112 \$ 6.25 \$ 7.0 \$ 5.00 \$ 5.5 \$ 7.0 \$ 1 X 12x12 255 sheets \$ 6.25 \$ 9.2 1 X 14x20, 112 \$ 6.25 \$ 7.0 \$ 5.00 \$ 5.5 \$ 6.25 \$ 9.2 \$ 7.0 \$ 1 X 12x12 1 X 1	FRENCH GLASS.
Best. Ordinary	
I C 10x14	Sizes. EFHIEHHHHB
Terne Plates. Prime Char. 2d. quality Cose. I C 14x30M.F. \$6,75. C 14x20 Old Process \$6.50 1 C 30x38 \$15.50	25 6 x 8 to 10 x 15. \$11.50 \$10.50 \$10.00 \$9.50 40 11 x 14 to 16 x 94. 18.00 12.25 \$11.50 \$10.75 50 18 x 22 to 20 x 20 17.00 16.00 14.50 13.25 54 15 x 36 to 34 x 30 19.00 17.00 15.00 13.25 10 28 x 22 to 30 x 30 19.00 17.00 15.00 13.25 10 28 x 22 to 30 x 44. 21.50 20.00 16.50 80 26 x 46 to 30 x 50 25.00 25.00 16.00 19.00 90 50 x 55 to 34 x 56. 26.00 22.00 21.00 20.00 90 30 x 55 to 34 x 56. 26.00 21.00 20.00 20.00 10 36 x 60 to 40 x 60. 31.00 28.00 28.50 28.00 10.00 10.00 10 36 x 60 to 40 x 60. 31.00 28.00 28.50 28.50 10.00 28.50 10 36 x 60 to 40 x 60. 31.00 28.00 28.50 28.
B + FO G + FE 4 9714	10 26 x 28 to 24 x 36
I C 14x230, 4,4.50 (25 4 15 4.51) 4.25 I X 14x30, 6.00 (25 6.50 I J 20x28, 9.00 (25 9.75 8.75 8.50 (25 6.70 I X 20x28, 112.00 (25 14.00 I C 20x200, 13.50 (25)	84 80 x 52 to 80 x 54 25,00 23,00 20,00 90 80 x 56 to 34 x 56 26,00 24,00 22,00 94 34 x 58 to 34 x 60 27,50 26,00 28,50 12,50 26,00 28,50 12,50 26,00 28,50 28,00 28,50 28,00 28,50 28,00 28,50 28,00 28,50 28,00 28,50 28,00 28,50 28,00 28,50 28,00 28,50 28,00 28,50 28,00 28,50 28,00 28,50 28,00 28,50 28,00 28,50 28,00 28,50 28,00 28,50
TYP 14-96 9 shoots for No. 7, 112 sheets \$12.00	Double Tines.
1XX 14x28, 2 " No. 8, " 6 18.00 1XX 14x31, 2 " No. 9, " 6 15.00 COPPER.—DUTY: Fig, Bar and Ingot, 4#: Old	D D D
COPPER.—Duty: Fig. Bar and Ingot, 4#: Old Copper, 3# b. Manufactured (including all articles of which Copper is a component of cher value). 35 g ad valorem.	
Valuel. 30 to 10 10 10 10 10 10 10 10 10 10 10 10 10	54 15 x 36 to 24 x 30 24.00 22.00 20.00 60 26 x 28 to 24 x 36 26.00 24.00 21.75 70 26 x 36 to 26 x 44 27.50 26.00 22.50
Cold Rolled Sheet, All Sizes.  16 oz. per square foot, and heavier	80 28 x 46 to 30 x 50 30,00 25,00 24,50 84 30 x 52 to 30 x 54 31,50 30,00 26,00 90,00 35,60 34,00 36,00 36,00 38,00 36,
TINNING.	100   96 x 60 to 40 x 60   38.00   36.00   34.00
Sheets, one side, 10, 12 and 14 x 48each, 6¢ Sheets, one side, other sizes 2 square foot 2) 6¢ For tinning both sides, double the above prices.	PAPER STOCK, &c.
For tinning boiler sizes, 9 lin., 14 x 6 each, 15¢ For tinning boiler sizes, 8 lin., 14 x 56 each, 12¢ For tinning boiler sizes, 7 lin., 14 x 52 each, 12¢ Sheathing Copper. (14 x 48*)	AND MALERALIZATION OF THE STATE
Hot Cold. Rolled. Rolled. 16 oz. to sq. ft. and heavier, per lb. \$0.17 \$0.18	Unbleached Muslins     5¼ 6     5½       City Whites. No. 1     3% 4     4       City Whites. No. 2     1% 6     2       New Canton Flannels     4½ 6     4½
14 oz. and up to 16 oz., per lb 18	New Seconds, light 34 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
Copper Bottoms.           Pits and Flats, 14 oz	Linen Canwas No. 1. 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
O'Nelli's Patent Planished CopperNet, 14x4e 14 and 16 oz. and heavier.27¢ By the case. # D 26¢	Manila Rope   2%   2%   2%   2%   2%   2%   2%   2
12 oz. and lighter	Rentucky Dasgring, No. 1.   1%   3   1%   1%   1%   1%   1%   1%
14 and 16 oz. and heavier.29¢ By the case. # D 28¢ And all sizes not over 20 in. wide.) 24x48 and 30x60.  14 and 16 oz. and heavier	Hard White Shavings, No. 1. 354 4 4 2 4 4 2 4 4 2 4 4 4 4 4 4 4 4 4 4
12 oz "S4¢ Planished Brass same price as Planished Copper	Mill Assorted Whites
Copper Wire,—(See Wire,) Sheathing Metal. Yellow Sheathing Metal, W B18¢ @	Rinders' Board Cuttings
BRASS AND GERMAN SILVER.  Brown & Sharpe's Gauge the Standard for Metal;	Biraw Board Cuttings, wewt

U	piciniber o, root.
# 1	Black Paint, in oil.
25 34 20	# Chinese dry
09	Van Dyke
1.8	6 dreen Chrome. in oil
1.8	Iron Paint, Bright Red
,5	" Purple
54	Brown. 66
bs 354	Mineral Paints   100
0 1	" in oilasst'd cans, 11¢; kegs, 5c
38	bienna, American Raw, powdered
74	Umber, Burnt, powdered
04 54 04	** Raw, powdered
	English
18.	White Lead, American, pure dry in oil
16	Yellow Ochre, French in ollasst'd cans. 11¢; kegs, 8¢
××	Yellow Chrome
*	Zinc White. Amercan No. 1, dry No. 1, in oil State of Tige of
××	in oil
18	011s
26 26	" Sperm, V gal
	Valvone Cylinder
**	Larg, Prime Winter
XX	Linseed, Raw in cases and blis
×	Oils.   Sperm. ♥ gal.   90¢
ge	Signai 48¢ Tatiow 9 & 15¢
	Sundries.
0	Asphaltum, Cuban, W B
100	Benzine
4 8	Sundries
5	Frostings
6	Sheet
	" Damar
	mineral Wool, ordinary, W 5
	Pumice Stone, selected Lumps
	Pitch
	Gun Powder Glazing, V b
	" Shot Pollsh ₩ B 259 g Putty, in biadders 134 g g 2 in bulk 1,140 g 2 Rosin-Common and Good—Strained
ı	" 1 & K
1	Stove Polish, Dixon's
1	Waste, No. 1 Cop
1	No. 1 White Machine
1	" E & F
1	Whiting, Spanish, # 100 B
1	AND THE RESIDENCE OF THE PROPERTY OF THE PROPE







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**FRANCIS AXE** 





SHEPARD HARDWARE CO BUFFALONY UNUSUAL FACILITIES FOR EXECUTING LARGE CONTRACTS FOR CASTINGS

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# Extension Lip Auger Bits



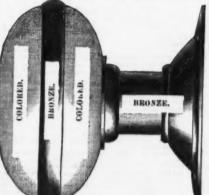
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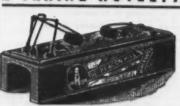
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MOUSE TRAP.

Always Baited. Sure to Catch. SEND 10 CENTS FOR SAMPLE.

RIPLEY MFG. CO., UNIONVILLE, CONN., U. S. A.



Towel Holder This little article is unexcelled for hanging Kitchen, Shop, Bar Room and other Towels, for suspending temporary curtains and numerous other purposes. They have met with unparalleled success for the short time they have been on the market, and are liked by all who see them.

Sample dozen, \$1.00, net; gross, \$7.00, net.

gross, \$7.00, net.

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HAFF & CO., Box 24, BARTFORD, CONN. Pat. Dec. 1, 1886.

SEBASTIAN, MAY & CO'S Drill Presses, Chucks, Drills, Dogs, and machinists' and annateurs' outfits. Lathes on trial, Catalogues mailed on application 179 W. 2d St., Cincinnati, O

THE HATCH BROTHERS CO., BRIDGEPORT, CONN., MANUFACTURE

Patented Novelties, FINE POCKET CUTLERY, SPECIAL TOOLS OR MACHINERY, LIGHT HARDWARE, &c.

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16-foot

Ohio, Work

engines for our ity is a On M furnace first plan well-Course has the out! Jefferson Joliet St.

#### MANUFACTURING.

Iron and Steel.

The United States Mitis Company are erecting small works in Jersey City in which will be placed a 1-ton open-hearth furnace and also a small crucible furnace. The intention is to make aluminium phyric and a few castings demonstrating the capacity of the Mitis process. the Mitis process.

P. L. Kimberly & Co., of Newcastle, Pa., have blown out their old Etna Furnace and will blow in their new furnace, which they have just erected there, in a few days.

An order was recently placed in Pitts burgh for 20,000 tons of steel rails for 1887 delivery by the Chicago, Burlington and Quincy Railroad. The order calls for special quality, and demands that 20 per cent. of charcoal iron be used.

It is stated that Jones & Laughlins, proprietors of the American Iron Works, at Pittsburgh, have determined to put an end to the difficulty between the nailers and feeders by adopting the use of self-feeding

Henry Klein, vice-president of the Sixth District Amalgamated Association, residing in Sharon, Ps., has been tendered and accepted the position of puddle boss of the mills of Andrews Bros. & Co., at Youngstown, Ohio.

The Louisiana Wire and Iron Mfg. Company, capital stock \$25,000, have been inpany, capital stock \$25,000, have been in-corporated at New Orleans, to manufacture iron, wood and tin ware, fencing, railings, &c., with Fred. A. Johnson as president; J. Henry Behan, vice-president; William F. Bunce, secretary, and David Lemley,

The new nail factory of the Chicago Steel Company, at Hammond, Ill., is being pushed to completion. The nail factory, keg fac-tory, office building and warehcuses are up, and the nail mill is ready for the machinery now being built in the East. The factory will contain 150 machines, and have a capacity of 1500 kegs per day. The nails will be made of steel instead of iron.

Howard, Childs & Co., of Pittsburgh, dealers in manufacturers' supplies, shipped an order last week to the Columbia Gas Light and Fuel Company, of Franklin, Pa., for 5 miles of 10-inch pipe.

The wages of the 40 men employed at the Union Boiler Works of Obert & Eckert, at Reading, Pa., have been increased 10 to 15 day, and they will hereafter receive \$2 for a day's wages.

The report published in the Pittsburgh papers to the effect that Isabella Furnace No. 1, at that place, had shown signs of chilling and would be blown out is without foundation. The furnace was never in bet-ter working order than at present.

The Lewis Foundry and Machine Company, Limited, of Pittsburgh, recently erected a large nail plate mill for the E. & G. Brooke Iron Company, at Birdsboro, Pa., and they have now in course of erection a very complete steel blooming mill for the Classes, Iron Company, at Pottstow, Pa. Glasgow Iron Company, at Pottstown, Pa.

Forty nail machines are in operation in the new mill of the Mahoning Valley Iron Company, at Youngstown, Ohio, and it is stated that there are an abundance of feeders applying for work. The feeders have taken no further action relative to an advance in wages.

The Falcon Iron and Nail Company, at Niles, Ohio, have placed 12 automatic nail feeders in their factory.

The first steel car-wheel ever rolled was made last week at the works of Totten & Co., at Pittsburgh, machinery weighing 90 tons being used. The experiment was considered entirely successful.

The puddlers employed in the rolling mill of the Jackson & Woodin Mfg. Company, at Berwick, Pa., recently made a demand for the Philadelphia scale of wages for puddling, refusing to be governed by the rate of wages prevailing in the Harrisburg district, as heretofore. The company deeming the demand unjust, and feeling that the condition of the market did not warrant the advance, immediately shut down the puddling department of the mill for an indefinite period. The company have operated the mill without profit for the past two years, and they consider the action of the men exceedingly ungrateful. An organization of the Knights of Labor has recently come into existence in the town, and this is no labelity that the contraction of the men expectation of the statement of the town, and this is no labelity that the contraction of the men expectation of the company that the statement of the town, and this is no labelity that the contraction of the company that the com into existence in the town, and this is no doubt responsible for the action of the men, as the relations existing between the company and their employees have always been pleasant heretofore. The other departments of the works are not affected and are run-

Steubenville Furnace, at Steubenville, Ohio, the property of the Riverside Iron Works, at Wheeling, W. Va., was blown in on the 3d inst., after a suspension of opera-tions since May 11 last. At that time the employees made a demand for eight hours' work with 12 hours' pay, which was refused by the company. The men resumed work at the same wages and hours as before the stoppage.

We are in receipt of the following letter under date of September 1, from the Bel-laire Nail Works, of Bellaire, Ohio: "Some four months ago we took down our blast fuanace, and immediately commenced rebuilding on a larger scale and with more recent improvements. We expect to blow in from the 10th to the 15th of the present Our present stack is 75 feet high, 16-foot boshes, four iron stoves, two blowing engines. The product will be Bessemer pig for our own use, and the anticipated capacity is about 150 tons per day. The stack and casting houses are entirely new.

On March 9 last the Jefferson Iron Works furnace was blown in, putting to work the power, 26 inch high-pressure and 45-inch well-Cowper stove. Gordon, Strobel & Laureau have now placed 20 in all, involving the outlay of nearly \$300,000, as follows:

Jefferson Iron Works, three, 17 x 65 feet;

Jefferson Iron Works, four 20 x 65 feet;

Pratt each o feet 6 inches in dismeter and 20 feet.

Pratt each o feet 6 inches in dismeter and 20 feet.

Pratt each o feet 6 inches in dismeter and 20 feet.

Alice Furnace Company, two, 19 x 55 feet; Vulcan Steel Works, three, 17 x 65 feet; Missouri Furnace Company, two, 19 x 55 feet; North Chicago Rolling Mill, three, 16 x 65 feet. The Joliet Steel Company have two furnaces, each 20 feet diameter and 80 feet high. At one of these there is a plant of Whitwell stoves 20 x 65 feet. Gordon, Strobal & Laureau have lately put at work at the other a plant of their type exactly the same size. Mr. Filby, president of the Missouri Furnace Company, St. Louis, is a director in the Joliet Steel Company, and, having all possible opportunity to make fair and reasonable companience he decided to and reasonable comparisons, he decided to put in the Gordon stoves.

The rail mill of the Springfield Iron Company, Springfield, Ill., which has been idle since January 1, 1883, will start September 15 to October 1 rolling rails from imported blooms. It will have a capacity for about 7500 tons of rails per month.

H. Boyer, Reading, Pa., Chestnut Hill Furnace, reports that they blew out No. 3 Furnace August 20. They are going to make it 60 feet high and add all modern improvements, and expect to blow in again about November 1.

Noble Brothers & Co., at Anniston, Ala. are building a new double puddling furnace, which will carry their capacity to 40 axles per day, single turn.

In the Oregon State courts the Oregon Iron and Steel Company have brought suit against Smith Bros. & Watson to recover property and for an accounting.

New York capitalists have purchased 4000 acres of land, including the town of South Pittsburgh, in Marion County, Tenn., and will erect several iron furnaces and make other investments at that point. The Tennessee Coal, Iron and Railroad Company, in selling the town, retained enough land for the successful operation of their business. The price received was \$300,000 cash.

#### Machinery.

The Westinghouse Electric Company are fitting up a mammoth testroom at their Pittsburgh manufactory. A 200-horse power Westinghouse engine will be used for testing dynamos alone, besides a 75-horse power in the shops, and 75-horse power operating a 3-mile circuit on their high-tension incan-

W. R. Eynon & Co., Cleveland, Ohio, have just completed and delivered to the Avery Elevator Bucket Company a large size special die sinking machine, capable of making a die for the largest bucket made, measuring 25 x 9 inches, stamped from solid steel.

The Westinghouse Air-Brake Company have just signed a contract to equip 1000 freight cars of the Colorado Midland with its system of air brakes. This is the first result of the great test at Burlington, Iowa.

Westinghouse engines are now running in England, Scotland, France, Holland, Belgium, Germany. Russia, Cuba, Canada, Central America, Mexico, Argentine Republic, Chili, Australia and Japan. They are also in every State and Territory in the United States except Nevada and the Indian Territory. Territory.

The Wainwright Mfg. Company, 65 and 67 Oliver street, Boston, and 93 Liberty street, New York City, have sold exhaust feed-water heaters as follows during the month of August: George H. Little, Peabody, Mass.: Melrose Pumping Station, Melrose, Mass.; Rutland Electric Light Company Rutland Vt. Charles Willer, Will rose, Mass.; Rutland Electric Light Company, Rutland, Vt.; Charles Mullen, Wilmington, Del.; J. N. Bassett, Worcester, Mass.; W. & B. Douglass, Middletown, Conn.; John Post, Jr., & Co., Boston; Matthew Robson, Salem, Mass.; J. A. Wing, Littleton, Mass.; Davidson Steam Pump Company, Brooklyn, and to the Fitchburg Steam Engine Company, Fitchburg, Mass. They have sold their corrugated tube expansion joints to the New York Steam Company sion joints to the New York Steam Company and to H. O. Nelson, Knoxville, Tenn. They are still selling large numbers of their cor-rugated brass tube radiators. They note a great increase in the demand for brass and copper corrugated tubes, and report the trade in wrought-iron pipe and fittings to

The firm of E. E. Carter & Co., who moved their works from Waynesburg to Pittsburgh within the summer, have an order for one of the 4 horse Success engines from Hamburg, Germany. They have filled orders from Portland, Ore., and Denver, Col., and have inquiries from San Francisco. cisco. They now occupy the plant of the Knoxville Chain Works, and build portable and stationary engines. and stationary engines, and do general foundry and sheet-iron work.

The foundry at the corner of Fifteenth street and Centre avenue, lately operated by Thomas Love, deceased, has been leased from the purchaser, the Chicago and Great from the purchaser, the Chicago and Great Western Railroad, by the Vulcan Iron Works, of this city, and will be known as the Centre avenue foundry department of the Vulcan Iron Works. It will start up with a fair supply of orders, and being specially adapted for heavy work will probably get its share of trade.—Industrial World, Chicago.

The Homer Ramsdell Transportation Company, of Newburg, N. Y., have awarded the contracts for constructing the proposed new steel passenger and freight steamer Homer Ramsdell, which is to ply between Newburg and New York as companion boat to the steamer Newburg, recently con-structed by Neafle & Levy, of Philadelphia. All the work upon the steamer is to be done by Newburg firms. The hull is to be con-structed by Thomas S. Marvel & Co., the engine and boilers are to be furnished by William Wright, of the Washington Iron Works, and the joiner-work is to be done by Thomas Shaw's Sons. The Homer Rams dell is to be 214 feet in length over all, 33 feet breadth of beam, 42 feet over guards and 11 feet depth of hull. She will be run by a vertical compound engine of 1000 horse-

pounds of steam. It is calculated that the pounds of steam, it is calculated that the engine will make 110 revolutions per minute. The steamer will have 108 staterooms, saloons and officers' rooms elegantly fitted up, and will be illuminated by electric light and heated throughout by steam. It is expected that the new steamer, upon which work is to be commenced at once, will make 20 miles per hour, and be one of the fastest propellers on the Hudson, equaling the per-formances of the Newburg and the City of Kingston.

The Peerless Mfg. Company, of Louisville, Ky., have just delivered two of their Rice sand-molding machines to B. F. Avery & Sons, of that city, and will shortly ship a machine to the Vulcan Iron Works, of Toledo, Ohio, for making molds for oilboxes for railroad cars.

The Automatic Drill Press Company, Chicago, capital stock \$50,000, have been incorporated by Wendelin Seng, Wm. Kreicker and A. P. Skinner. Object, to manufacture drill presses, &c.

Mr. J. S. Glenn, of the Glen Valve Manu-Mr. J. S. Glenn, of the Glen Valve Manufactory, Chicago, Ill., has received the order for the hydraulic valves for the Duquesne Steel Company's plant. These valves, which we illustrated some time ago, are rapidly gaining favor. This order was received from Messrs. Mackintosh, Hemphill & Co., Fort Pitt Foundry, Pittalusch, Pa Fort Pitt Foundry, Pittsburgh, Pa.

The Hamilton Machine Company, of St. Louis, Mo., have recently made several important shipments of engines, boilers, clay crushers and other machinery to various ections of the West.

The Ring Machine Company have been or-ganized at Portland, Me., to build machinery.

The Clayton Air Compressor Works, of Brooklyn, N. Y., have just shipped to Sydney, Australia, a duplex air compressor. It has two 12-inch steam cylinders; two 8inch air or gas cylinders and a stroke of 26 inches. The compressor is fitted with all the latest Clayton improvements. It is designed to compress hydrocarbon gas to 300 pounds.

Messrs. Parsons & Landon, manufacturers of iron castings, Bridgeport, Conn., are now working on a large contract for the De La Vergne Refrigerating Machine Company, of New York. They are also largely engaged in making opera-house chair castings and horse-railroad castings, and are now fitting up to enter into the manufacture of piano plates, brackets, pedals, &c.

During the past summer the Pratt & Cady Company, of Hartford, Conn., manufacturers of valves, cocks and gauges, have extended their works by putting up an addition to their shop of 100 x 46 feet, two stories high, and to their brass foundry a stories high, and to their brass foundry a building 40 x 70 feet. It has a slate roof with monitor top, and contains 11 new melt-ing furnaces, together with a new 50 horse-power steel tubular boiler built by I. B. Davis & Son, of Hartford. It is also pro-vided with a nickel-plating outfit from Han-son, Van Winkle & Co., of Newark, N. J., analysing them to plate their redistance and enabling them to plate their radiators and finished work. In addition, new tools and machinery have more than doubled the capacity of the Pratt & Cady Company's works, as compared with last year. Their asbestos renewable disk rings, which go into all their valves, are very popular and are getting a strong hold on the market. Their asbestos-packed cocks, which they furnish from 1/4 inch to 8 inches inclusive, are said to be the best, and to stand more hard usage than any cock or valve on the market. They cost more than the common plug cock, but, it is claimed, will last many times longer. They are largely used as blow-off cocks for boilers when something tight and reliable is a necessity. Many thousands of them are in use.

Mr. D. B. Cruickshank, machinery dealer of Providence, R. I., reports the following shipments of machinery: A 10 x 24 Corliss engine to Yantic Woolen Company, Yantic, Conn.; a 15-horse-power boiler and a 2-Conn.; a 15-norse-power honer and a 2-inch rotary pump to Bristol Creamery, Drownville, R. I.; a 34-inch band saw to Saunders & Ring, Providence, R. I.; a 6 x 12 hoisting engine and boiler to Harmiss Mig. Company, Phenix, R. I.; a 25-horse-power high-speed engine to J. A. Shipper, Poinsett, Fla.; a 35-horse-power boiler to Sterling Dyeing Company, Sterling, Conn.; a 10 x 24 horizontal engine to Union Paper Mill, Pawtucket, R. I. Mr. Cruickshank reports business fair

States Navy-Yard, at Brooklyn, N. Y., and will be delivered in a short time.

#### Hardware.

The Hartford Machine Screw Company, Hartford, Conn., have recently added to their works a department devoted exclusively to the finer grades of screws, &c., such as are used in watches, clocks and optical instruments. They also furnish account of the screw machines for producing automatical screw machines for producing work of every description from the smallest watch screws to the heaviest millwork. They have recently supplied a large number of machines for a company located in Halifax, England.

The Wright Wire Cloth Company, Palmer, Mass., are putting in some looms for the manufacture of poultry netting, a line to which they are giving some attention. They are also manufacturing the hardware grades of wire cloth, locomotive spark cloth, &c.

The employees of the Beaver Falls Shovel Works, at Beaver Falls, Pa, have organized a relief association of a character similar to the one now successfully conducted by the workmen of the Hartman Steel Company, Limited, at that place.

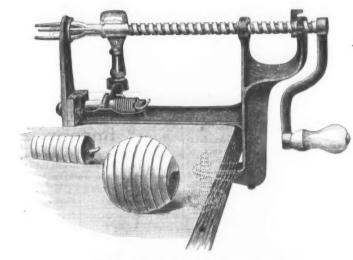
New England Specialty Company, North Easton, Mass., have added to their list of products a line of single and double mincing

#### NOVELTIES.

The Ideal Apple Parer, Corer and Slicer.

L. A. Sayre, Newark, N. J., is manufacturing this machine, which is represented in the cut given herewith. Attention is diparticles of dirt which the action of the rected to the fact that the rod has a deep steam has loosened, the water discharged rected to the fact that the rod has a deep thread, so that there is no danger of the from the buckets finding its way back to

is pierced, and through which enters, a certain quantity of the boiling water is scooped up with each rotation of the drum, and carried along until it reaches the top or highest point of the circle, when it is discharged in a stream on the clothes.



The Ideal Apple Parer, Corer and Slicer.

guide slipping out. The guide is thrown out of position by the handle when the apple is finished, thus permitting the rod to be drawn back by a single motion, when the push-off expels the core automatically. The simplicity and the efficiency of the action of this push-off are also alluded to.

#### The Empire Sash Pulley.

The illustrations, Figs. 1 and 2, represent this article, which is manufactured by the Empire Portable Forge Company. Cohoes, N. Y. Its general features will be understood without detailed explanation. It will be seen that it has no face-plate and does



Fig. 1.—The Empire Sash Pulley.

not require any screws. The mortising is done with a 1/2 inch auger bit, and requires, it will be perceived, only four holes. The centers of the holes are marked without the use of gauge or center marker, by laying the points of the ribs on the line which is to be the width of the mor-tise and tapping with a light hammer. When boring from the exact centers four straight parallel holes the pulley may be inserted and driven home, a small block being used to protect the edges. It is aimed that the pulley will then be securely held and cannot get away, as the shrinkage of the wood will clasp it tightly, but if it is desired to make it more secure small brads . nails may be driven diagonally in the

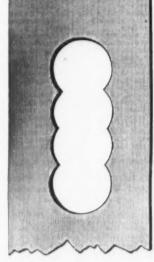


Fig. 2 -Mortise for Sash Pulley.

casing through the slots at each end. These pulleys are made with 4-inch steel axles, with plain face, unground wheel; plain face, polished wheel; bronzed and polished face and wheel and nickel-plated and polished face and wheel, and are described as of the best material and strong and durable.

#### New Steam Washer.

reau have now placed 20 in all, involving the outlay of nearly \$300,000, as follows:

Jefferson Iron Works, three, 17 x 65 feet;

Joliet Steel Works, four, 20 x 65 feet;

Pratt
Coal and Iron Company, three, 21 x 65 feet;

long, and she will be allowed to carry 100

The Forsyth Scale Company, of Youngstown the involving the outlay of nearly \$300,000, as follows:

wheel of 10 feet diameter, having a 15-foot town, Ohio, inform us that their trade is improving. They have sold more than 50 improving the water, and by means of buckets, A and B, Fig. 2, attached to four horizontal control the first of the one story buckets, A and B, Fig. 2, attached to four horizontal sold in the control than 50 improving the water, and by means of buckets, A and B, Fig. 2, attached to four horizontal sold in the control than 50 in the outland the bottom of which bettom of which bettom of water than 50 in the outland the bottom of which bettom of which bettom of which bettom of wheel of 10 feet diameter, having a 15-foot town, Ohio, inform us that their trade is the water, and by the water, and by the water, and by the water than 50 in the water tha



Fig. 1.-Silver & Co.'s Steam Washer.

teature, the application of boiling water in small streams to the linen while under the action of the steam, is the one upon the value of which the manufacturers lay

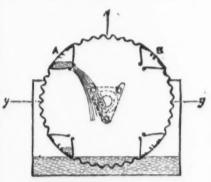


Fig. 2.—Sectional View of Washer.

special emphasis, while they also allude to the many advantages connected with the use of this machine. The machines are described as made of heavy block tin plate, and their strength and durability alluded to.

A gentleman connected with the Mexican legation, just returned from Mexco, says the grave question in Mexico now is the depre-ciation of silver. This metal is the princi-pal export of the country, and it has gone down in value so much that all foreign merchandise has advanced in price 50 per cent. Most merchants have suspended their orders for foreign goods, and those who are compelled to make purchases in foreign markets ship the silver and deposit it as collateral, borrowing money upon it on 3 per cent. interest to meet their obligations. In the City of Mexico exchange on New York costs 38 to 39 per cent. This state of things is greatly stimulating a desire for the introduction of manufactures and an increase in the shipments of natural products, such as sisal, vanilla, mahogany and other orna-mental woods, hides and skins. The Government is doing everything possible to encourage exportations, and has made con tracts with steamship companies doing business with New York, Havana and Europe to carry Mexican products at low rates of freight.

The illustrations, Figs. 1 and 2, given herewith represent the steam washer made by Silver & Co., 56 Warren street, New York, Fig. 1 showing it in connection with stove, and Fig. 2 giving a sectional view nicated from one of the portable soldering forwards to tark of liquid far which stood near Vienna, coppersmiths were repairing with solder a copper vat in the fat-rendering nicated from one of the portable soldering furnaces to a tank of liquid fat which stood and illustrating some of its special features. furnaces to a tank of liquid fat which stood. The washer, as will be seen from the cut, near at hand. Instantly the grease ignited, consists of a tank in which is fixed, and a great column of flame rose up to the roof

Chattanooga. Office of The Iron Age, Carter and Ninth Sts., I CHATTANOOGA, September 6, 1886.

The natural disturbances of the past week have not in any manner affected the general tone of business, and everything is moving along with its usual spirit and energy, with a tendency to an increase in volume, especially in the manufacturing lines. One of the best indications of the amount of business that a country is doing is represented by the amount of freight that is being carried by the railroad lines, which have now got to a point that the volume of it is simply em barrassing to many of the lines. Orders are being known to lay on the hands of the producer from 10 to 12 days waiting cars to ship, and the outlook is now that the roads will be compelled to largely increase their rolling stock to accommodate the patrons of their respective lines. The situation of many of our manufactures may be illustrated in the reply of one of our largest manufacturers when solicited for an advertisement : "I do not want to advertise. I do not went any agents out soliciting orders, and I really hope we will not receive an order for three months. I am simply sick and tired out by being drove as I am and have been for the last three months in my efforts to fill the orders that have been coming in." This same party, who are manufacturers of furniture, are now building another factory at a cost of about \$15,000, which will, of course, largely increase their capacity. During the past week five manufacturing sites were sold on the line of what is known as the Belt Railroad to parties from the North with a view road to parties from the North with a view of putting up small manufacturing establishments.

Hart. A. H. & Co. Mach.y. pkgs., 8
Hartley & Graham, Pig Iron.-There is nothing of particu-

lar interest to speak of in this line beyond the fact that producers are meeting with ready sales for their output at prices that average something more than a few weeks ago. The question of a stiffness of the market is now fully established beyond a doubt, and the demands are of such a character as to render the producers quite easy as regards the future. Many of the furnaces are endeavoring to run on Nos. 2 and 3, which are grades that find the readiest sale in all the principal markets, and \$12.50 @ \$13.75 is a fair average. Shipments of all grades during the past week have been very heavy to Eastern points via the seaboard, and aggregate about 2700 tons during the week. The Southern foundries are beginning to anticipate their wants for the fall business, and are buying quite freely.

Lumber.-While this market has for some time been favorably known as an exrecently developed into a furniture manufacturing center, also manufacturing of Sash, Doors and Blinds. There are no less than seven large establishments of Sash. engaged in this occupation, but another will Thurnaeur. G. M. engaged in this occupation, but another will cases, 16 go into operation in about 10 days, and Van der Toor, another in about six weeks. The number of hands now employed will aggregate about 1200, and the shipments will run from 15 to 30 carloads per day into nearly every section of the United States. Should this industry continue to increase in the future in the same ratio as in the past it bids fair to overshadow in volume the business of which Chattanooga has become famous-i. e., the manipulation of Iron and cognate industries.

Miscellaneous. - The alterations that are being made in the works of the Roan Iron Company with a view of turning them into a Steel plant for the manufacture of Rails, of which mention was made in the columns of The Iron Age some weeks since, is rapidly nearing completion, and the management expect to be turning out Rails some time in November. This event will be worthy of note in the history of Iron-making in the Southern States, and its success will be looked upon with much interest by the Steelmaking fraternity of the United States.

#### Baltimore.

W. N. WYETH, Iron and Steel merchant, and 48 South Charles street, reports us the following, under date of September 6 Since our last report, and as therein stated trade has much improved, both inquiry and demand causing the result. Values, however, remains about as then quoted. This improvement is not confined to local wants, but is coming from all tributary territory, and from the outlook seemingly permanent-in other words, the result of long stagnation We quote the list nominally at annexed figures:

Ever. Diar from, I to b x 98 to 1		
" 1 to 416 x 116 to 1	. D 1.8	0 64 2
" % to 2, Round		40 -
and Square	W 15 1 60	@ 2
Hoop Iron, 114 wide and upward	\$2 By 1/14	OR 216
Band Iron, from 116 to 6 in. wide		@ 234
Horse Shoe Iron	4.0	8.85
Norway Nail Rods	** 5	@ 514
Black Diamond Cast Steel	10 0	@ 10°
Manhinama Otani	10 184	
Machinery Steel	999	@ 414
Spring Steel	11 332	
Common Horse Nails	0.0	@ 9
Railroad Spikes, 516 x 9-16	** 2.30	@ 214
Dankingh Danes Of an Allin A	A. 180	(D) 42%
Perkins's Horse Shoes, V keg of	TOU ID	
" Mule Shoes		4.
Boiler Tubes	5,000	La a note li
		M w cont w

#### Detroit.

CHARLES HIMROD & Co., dealers in Pig Iron, Detroit, Mich., report, under date of September 6, as follows: A still more hopeful feeling, based upon present and prospective demand and actual short stocks on hand at the furnaces, is being felt in the entire Pig-Iron market; there is scarcely an exception. Lake Superior Charcoal Iron leads the list in firmness, followed by Southern Coke Irons. Inquiry is again being made for rather larger quantities than had

been expected, considering the fact that nearly all of the largest buyers had placed their orders for this year. It looks now as if it was a question of but a short time before this quite firm feeling which we have noted shall take the form of an actual advance. There is not a furnace in the Lake Superior district today that has a large Superior district to-day that has a large stock of Iron on hand. Old Rails are in active demand and scarce, prices being firm as quoted below. There is some inquiry for Old Wheels, which seem hard to get at market rates. We quote as follows:

Lake Superior Charcoal, all numbers	\$21.50	<b>a</b>	\$22.50
Lake Superior Coke, All Ore	20,00	0	21.00
Lake Superior Coke, Cinder Mixed.	18,00	a	19.00
Standard Ohio Blackband	20.00	0	21.00
Southern No. 2	17.00	0	17.50
Southern Silvery, Open	17.00	@	17.50
Southern Silvery, Close	16,50	0	17.00
lackson County, Ohio, Silvery	18,00		19,00
American Old Iron Rails	21.00		22.00
Old Wheels	16.50	00	17.50

#### Imports.

Pierson C. L. & Co.
Pig, tons, 22
Stetson Geo. W. & Co.
Pig, tons, 250
Williamson Jas. & Co.
Pig, tons, 100
Order.

Baring Bros. & Co. Bess. slabs, bars, 909 Slabs, 622

Hammacher, Schlem-mer & Co. Wire, cs., 7 Heger, Alfred, Rods, bdls, 9 Wire rods, bdls., 263 Lazard, Freres, Wire rods, colls 8449

Slabs, 622 Blooms, 275 Boker Carl F. Packages, 24 Crabb, Wm. Wire, pkgs., 21 Company La— Lead, pigs, 3229 Hammacher, Schl

The following were the Imports of Hard ware, Iron, Steel and Metals into the Port of New York for the week ending September Phelps, Dodge & Co. Sheets, bxs., 27

,	15, 1886 :
)	Hardware.
	Boker Hermann & Co.
,	Cutlery, cs., 18 Clark, Walter L. Mach'y, cs., 8
	Downing & Co.
	Ironware, pkgs., 9 Drexel, Morgan & Co.
	Arms, cs., 56 Field A. & Co.
	Chains, csks, 14 Folsom, H. & D.
I	Gerdan Otto,
1	Bdls, 129 Bales, 15
ı	Godfrey, J. C.

Arms, cs., 64 Mdse., cs., 20 Junge, H. Cases, 3 Kastor, A.

Cutlery. cs., 8 Knauth. Nachod & Co. Knauth. Nachod & Co,
Arms, case, 1
Lau. J. H. & Co.
Arms, cs., 6
Legget & Co.
Oil stones, cks., 60
McCoy & Sanders,
Cases, 6
Merch. Desp. Co.
Arms, cs., 7
Moore's Sons, J. P,
Arms, cs., 7
Moore's Sons, J. P,
Arms, cs., 8
Ogden Wallace,
Mach'y, cs., 2
Sallenbach, W. & Co.
Mach'y, cs., 2
Schoverling, Daly &
Gales,
Arms, cs., 22
Schoverling, Daly &
Gales,
Arms, cs., 22
Schotte, W. & Co.
Cases, 13
Schulz & Ruckgater,
Lron barrels, 30
Mach'y, cs., 2

Rods, bdls., 263
Lazard, Freres,
Wire rods, bdls., 263
Lazard, Freres,
Wire rods, coils, 8449
Merch. Desp. Co.
Rollers, 18
Muller, Scholl & Co.
Rods, bdls., 866
Bands, coils, 6127
Power, C. W.
Casks, 35
Rawlins, G. E.
Cases, 24
The Tomilinson Steel Co.
Bundles, 98
Order.
Billets, 1398
Billets, tons, 7554
Rods, bdls, 46,221
Slabe, 64
Crop ends, lot, 1
Billet ends, loads, 4
Blooms, 7559
Bars, 987
Old springs, lot, 1
Rollers, 64
Bands, 483
Forgings, 88
Hawser, 1
Rails, 384
Plates, 6
Strips, cks., 26
Tubes, 254
Tubes, 254
Tubes, pkgs., 8
Rail crop ends, tons,

es, cks., 850

Van der Toor,
Arms, cs., 2
Vom Cleff & Co.
Cutlery, cs., 4
Wheeler, F. A.
Mach'y, box, 1
Wiebusch & Hilger,
Arms, cs., 37
Cases, 23
Wite, John G. & Bro.
Cutlery, cs., 13
Order, Order, Nails, kegs, 5 Casks, 2 Mach'y, cs., 100 Msch'y, pkgs., 4 Cutlery, cs., 2 Cases. 3 Bolts, kegs, 5

Iron. Baring Bros. & Co.
Wire rods. coils, 2851
Brown Bros. & Co.
Bars, 1729
Coddington T. B. & Co.
Sneets, bdls., 373
Crocker Bros.
Pig, tons, 200
Ferro Iron, tons, 200
Tons, 286
Gernan, Ctto,
Bundles, 189
Bales, 15
Lundberg Gust.
Bars, 12,600
Bundles, 455
Rivet rods. coils, 489 Rivet rods, coils. 4 Mason John W. & Co. Wire rope, reel, i Wire rope, coil, 1 Miller, Schall & Co. Rivet wire ro-coils, 251

Spiegel, lot, 1 The imports at this port of Cutlery, Hardware and Metals during the week ending September 3 were as follows :

l	Deptember 3 were as remove	
		Quantity.
١	Anvils	
	Brass goods	89
ı	Bismuth	8
	Bronzes	54
	Chain and anchors	49
	Copper	
١	Cutlery	
	Clocks	64
١	Dutch metal	203
	Electrotypes	8
	Guns	80
	Gun wads	1
	Hardware	9
	Iron, pig, tons	2,056
	Iron, sheet, tons	59
	Iron, spiegel, tons	8,963
	Iron ore, tons	568
	Iron, cotton ties	2,200
	Iron, other, tons	784
ı	Lead, pigs	4,506
١	Metal goods	316
ı	Machinery	175
1	Needles	16
1	Nickel	6
1	Old metal	
1	Pistins	2
I	Plated-ware	89
Ì	Percussion caps	62
1	Pins	20
1	Plumbago	387
Į	Quicksilver	400
I	Regulus antimony	500
l	Saddlery	5
ĺ	Steel	28,568
ĺ	Spelter, B	55,977
ĺ	Silverware	7
ĺ	Tin, bas	2,891
ĺ	Tin, slabs, 18,344 D	06,888
ı	15 ire	7
ı	Zinc. oxide	8.6

#### Obituary.

John Fry died at his home near Lime Rock, Conn., on August 30. Mr. Fry wa-one of the oldest furnace managers in that region, having learned the business while employed by Mr. N. Gridley more than 50 years ago. He built and owned the furnace at Shaftsbury, Vt., and for many years had charge of the furnace of the Barnum Richardson Company.

Mr. Samuel H. Jack, for a number of years past connected with the Black Diamond Steel Works (Park Bros. & Co.). and well known in iron and steel circles died on Thursday, September 2, after a short illness. Deceased was also for a number of years in the employ of Zug & Co., of Pittsburgh, and acted as traveling salesman for both of the above firms.

#### Twin-Screw Vessels.

In discussing Mr. W. John's paper on "Atlantic Steamers," recently read before the British Institution of Naval Architects, reference was made to the advantages of twin screws for vessels. It was remarked that when a ship with twin screws was being handled in dock there was greater maneuvering power, and therefore less liability for the ship to come in contact with the walls, although if she did so there would be greater probability of damage to the pro-pellers. Means could, however, be devised of protecting the screws when the ship was in dock. Another of the incidental advantages connected with twin srews was that smaller engines and smaller propellers were required, and therefore they might run them at a higher speed. They would also get lighter machinery with twin screws, and there would be less liability to have bad cast-ings and forgings in the smaller engines, and of course the cost would be less.

Pig. tons, 100
Order.
Bundles, 350
Rods, bales, 2819
Pig. tons, 150
Tubes, 406
Cotton ties, bdls., 2200
Spiegel. tons, 800
Colled rods, bdls, 391
Ties, bdls., 2200
Rods, bdls., 78
Ore, tons, 2100
Fish plates, bdls., 32 The Launch Henrietta.-The extraordinary run of the little nautical wonder, Henrietta, last week, is the chief topic of conversation in yachting circles. Her marconversation in yachting circles. Her mar-velous speeds have hitherto all been made over short distances, and it was believed generally that she could not keep up her tremendous spurts when the distance was over 100 miles. In order to test this point over 100 miles. In order to test this point a run was made on the 3d inst. from Catskill Landing to Sandy Hook. According to available reports the trip was made in 7 hours 2 minutes, which, deducting the 22 minutes' stoppage at Newburg, makes the actual time from Catskill to Sandy Hook, a distance of 1331/3 miles, 6 hours 40 minutes, or at the rate of 201/2 miles per hour.

> An international exhibition has been proposed for Barcelona, Spain, to open in September, 1887, and to close in April, 1888, thus occupying the winter half of the year. A company is being formed to promote it, and it will include agricultural, industrial and commercial products, with special sections for marine, electrical, therapeutical and artistic exhibits.

> New Orleans is said to have more arc lights in proportion to the population than any other city. There are 1800 in action every night, and the cost is a fraction under 32 cents each per night.

> Love Bros., of Aurora, Ill., have on hand a large number of orders for castings, one for a new brewery in Aurora of 65 tons, be-sides 100 tons of building work for a city concern. They are employing about 40 men.

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To the Editor of The Iron Age .- SIR Bessemer steel has taken the place of iron in every branch of manufacture where iron has been extensively used, except in the manufacture of tubing. That Bessemer steel would make a better, stronger and cheaper tube cannot be denied, but the trouble has been to secure a quality of steel that will admit of being welded by the mechanical appliances found necessary in this particular branch of manufacture. It is not only diffibranch of manufacture. It is not only dim-cult, but it is absolutely impossible to pro-cure a suitable quality of steel. The only reason apparent to the writer why steel of this quality cannot be had is the inability of steel manufacturers to manufacture it in sufficient quantities. To make the assertion that the process is not adapted to producing this quality of steel would, to say the least, be making an assertion that experience has proven to be erroneous. It is certain that tubes of the very best quality have been made from Bessemer steel. This at once proves beyond a reasonable doubt that the fault is not in the process, but in the prac-tice. I have seen Bessemer-steel tubes that stood the severest tests, but the firm that furnished the steel found it quite difficult, if not impossible, to manufacture this quality of steel in anything like commercial quanti-ties. In fact, it appeared to be a chance blow from which the tubes in question were

Tube as well as Bessemer manufacturers appear to believe the difficulty to be solely a chemical one; consequently expect to reach the desired end through the aid of chemistry. Quite often the remark is made (and sometimes by Bessemer men) that steel to weld properly and come up to all the necessary requirements in the manufacture of tubes must be of such and such quality or have a certain amount of carbon, manga-nese, silicon, sulphur and phosphorus in cerness, silicon, sulphur and phosphorus in certain proportion. Doubtless these elements as well as others have a great deal to do with the quality of the steel, and to a certain degree control it. But to say that they alone control quality is an erroneous statement. Two pieces of steel from different blows with practically the same amount of these elements will often belows to different blows with practically often belows to different to the same amount of these elements will often belows to the same amount of these elements will often behave quite differently in the forge and show radically different physical tests. On the other hand, samples from two blows whose analyses may be widely different when subjected to a physical test will frequently show good results in both cases. Judging from these facts it is evident that the quality of steel does not depend entirely on its chemical composition. Or, in other words, the same quantity of the ele-ments usually found in Bessemer steel does not insure like physical results, and consequently cannot be taken as a final index to

As I understand it the trouble has been in the welding. To be a success the steel must be of such quality as will admit of being heated to the required temperature without affecting the quality of the steel or in any way affecting the strength of the finished tubes. To produce a steel of this quality is where the difficulty exists. This will cerwhere the difficulty exists. In swill certainly require more care and attention than steel for rails, nails, wire rods, or, in fact, almost any other kind yet produced by the Bessemer converter. This is so, simply because this steel must be strictly uniform in every particular and at the same time admit of being walded by the mechanical appliof being welded by the mechanical appli-ances in the manufacture of tubes without the assistance of flux or hammer. In order the assistance of flux or hammer. In order to substitute Bessemer steel for iron in the manufacture of tubes it must possess this most essential and indispensable quality—welding—in the very highest possible degree. There is no question but that there is something apparently mysterious surrounding the manufacture of welding steel, and that the highest authorities disagree in their attempts to solve this problem. I do not intend to give my opinion or say what not intend to give my opinion or say what course I would advocate in order to produce this quality of steel. Suffice it to say that it is my opinion that if ever the problem is polved it must be done otherwise than by the present system or method of conducting

uch experiments. The present method of conducting the buyer, but so far as it aids in determining the cause of the apparently mysterious behavior of the different elements in the production of welding steel it is of little consequence. For it is quite evident that causes of the chemical reactions that change and produce different chemical and physical results are more important to those conducting the conversion than the composition of the fluid the finished product. It is a very easy matter to say that steel of a certain quality must contain a certain quantity of manganese, carbon, &c. But to get in this mount under certain conditions that must comes down to real practical knowledge they know less by far than the blowers. Of

The Production of Welding Steel for facturers of Bessemer steel ever expect to Tube Purposes in the Bessemer make this quality of steel a success they certainly will have to make some radical changes in the present method of manufacture. Then, and only then, must they expect success.

Benwood, W. Va., September 3, 1886.

#### The Mineral Commission of Michigan on the Gogebic Range.

Mr. C. D. Lawton, Mineral Commissioner of Michigan, writes as follows to the Pick and Axe

The Gogebic iron range is much more extensive than was at first supposed. There are two remarkable deposits of ore; profitable mines are found and will continue to be found for a greater distance than was heretofore looked for. The iron bearing The iron bearing formation has considerable width and a long stretch east and west, and it seems to hold favorable indications of iron throughout its whole extent. The remarkable fact relating to this range is that the ore wherever found is uniformly of good quality-not all equally good, of course, but generally clean, high up in iron and low in phosphorus. So that in the matter of the quality of the ore found in this district there is entire security left—the anxiety is to find it at all and then in quantity. Apparently the "finds" are sufficiently frequent. They make excitement enough, and keep the air vibrating with the music of speculation, but there has been so much said of this region, so much that this unreal and exaggerated, that one who has given credence to all that has come to his ears, and that has allowed his anticipations to take too high a range regarding the magnitude of the ore deposits, many suffer disappointment. They may appear to him in reality more limited, apappear to him in reality more limited, apparently, than he had been lead to expect. Certainly no Lake Superior man familiar with the early developments in the Marquette and the Menominee districts can find any thing in this particular to astonish him. In the leading mines of the Menomines district, when originally opened, more ore was displayed than is to be seen in the Gogebic mines at the same stage of development. Still the deposits here are of good nagnitude, and I think that the indications are all favorable for their continuance. I certainly can see no cause to apprehend a speedy exhaustion of these ore deposits; no reason but to believe that they will continue through many years to find ore in such supply as a fair interpretation of the present

supply as a fair interpretation of the present indications will warrant. And now that I am writing I would willingly say a word of some of the mines, but will only embrace the opportunity to write briefly of the Colby, which has since recently filled a larger measure of the public attention than any other mine in the State.

The Colby Mine, like the other mines of this range, affords excellent ore—clean, beautiful ore, about 60 per cent. in iron in the furnace and low in phosphorus—a fine Bessemer ore that is greatly prized by all furnacemen who are so fortunate as to obtain it. It was a phenomenal deposit from the unprecedented quantity that was got out in so brief a time, with so little labor and at so low a cost. The history of Lake Superior mining affords no other instance to compare with it—one where so much good or has been so beauty this description. compare with it-one where so much good ore has been so cheaply obtained. Thus Thus far company have mined the ore in the two de-posits [the north and south veins or lodes— ED.], advancing from the west toward the east, and trammed it out directly to the railroad from the stopes. No mining could be cheaper or more simple. But the company are beginning to encounter some of the difficulties that eventually must be incident to all mining enterprises. Especially is this to all mining enterprises. Especially is this true in the south deposit, where the rock has come in from the hanging wall at the east end to cut out the ore. Drifts into the foot wall discover the ore in quantity equal to the amount lost in the open cut, but the serious question arises how best to attack it. It is covered by a great overlaying burden of rock that has little sustaining power in itself. It is made up of slips that drop down as fast as the support is removed. The Colby has in this deposit for the future all the perplexities that any one cares to enall the perplexities that any one cares to encounter in his work. The south deposit is a fine one—an immense chimney of ore pitch-The present method of conducting the manufacture is, in my judgment, very poor. In fact, it may more truthfully, and perhaps more correctly, be termed lack of method, for such it is. The practice of conducting a series of chemical analyses that there is no feet in hight. Above its vertical section confect in high the property of the series of the manufacture is a capping of rock 25 to 30 feet in thickness in use for years before the manufacture is a capping of rock 25 to 30 feet in thickness in use for years before the manufacture in his work. The south deposits in a counter in his work. The south deposits is a counter in his work. The south deposits is a fine one—an immense chimney of ore pitched, and the property of the south deposits in the south deposit is a fine one—an immense chimney of ore pitched, and the property of the south deposits in the south deposit is a fine one—an immense chimney of ore pitched, and the property of the south deposit in the sout have been in use for years before the manufacture of welding steel was thought of is certainly quite strange. I believe that a come into one at a greater depth, a hope certainly quite strange. I believe that a come into one at a greater depth, a hope correct analysis of the finished steel is of that is entertained by the management and correct analysis of the finished steel is of that is entertained by the management and nuch value to the manufacturerer and for which there are some evidences to favor. buyer, but so far as it aids in determining The Norrie, another of the mines of magnithe cause of the apparently mysterious bethe cause of the apparently mysterious betude on the range, is wholly underground.

The engines of the Etruria, of the Cunard Line, have one high-pressure cylinder 71 inches, and two low-pressure cylinders 105 inches in diameter, with a stroke of 6 feet amount under certain conditions that must nece sarily be observed does require more practical knowlege and judgment than is derived from the mere analysis of the finished steel, and more by far than most blowers possess. I do not wish the reader to infer from this assertion that I think those holding higher positions—chemists included—possess any more knowledge in regard to this matter of producing welding steel than the blowers She has 72 furnaces, and the working presshuge dimensions seems to multiply the num-ber of cylinders, and the great number of producing welding steel than the blowers, adjuncts serves to complicate the whole ma-for it is an acknowledged fact that when it bewildered before them.

know less by far than the blowers. Of course there are some exceptions, but these are few indeed. The one thing that surprises me most is that the results have been so good. It is certainly astonishing how most Bessemer men adhere to old methods and practices, which were and are good in the manufacture of rail steel, but had in the manufacture of steel of this kind. Radical changes in quality must necessarily be brought about by radical changes in method and practices. So. in conclusion, if the manufacture there are some exceptions, but these are two has just returned from an extended tour in Canada and the United States tells a correspondent of the Engineer that his country has not Germany to fear, but America He was surprised to find on every side the immense strides the Americans had made, readily adapting machinery to almost every article, and thus producing goods at prices at which the British manufacturer could not possibly place them before the trade.



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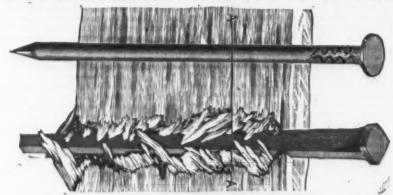


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#### The Preservation of Wood.

P. H. Dudley closes an article in the Popular Science Monthly, upon "Woods and Their Destructive Fungi," with the following interesting paragraphs:

One important aid in the preservation of timber will be, for those whose duty it is to care for it, to acquire more practical knowledge of the fungi which grow on it, and this is not a difficult task. What is needed this is not a difficult task. What is needed is to call the attention of the men to the conditions and to the prevention of the growth of fungi. The literature about it is meager, only foreign text books having been published which describe the general species. Prof. Charles H. Peck, in the reports to the New York State Museum of Natural History, from the 23d to the 38th, inclusive, has described a great many species of fungi, and has made the most important American publications to date. For portant American publications to date. For practical use he has done a valuable work in the collection and mounting, in the State Herbarium, at Albany, of over 2600 species, where one can in a short time learn to identify the ordinary species found upon ties and timber. In the Columbia College Her-barium these is a collection of nearly 3000 species of the general fungi of this vicinity, which is also open for study. The facilities for taking up the practical work are abundant. Every railway company has men of sufficient aptitude to learn to identify species and study their conditions of growth and form, from the materials which can be found upon every mile of their lines, collections of decayed wood, from which the employees can gain knowledge to be put into daily practice to check much of the unnecessary decay of all their woodwork of ties, bridges, cars and buildings. The chearest operation to protect our woods, and quite sufficient for many purposes, is to season or thoroughly dry the timber, reducing the contained moisture from 8 to 12 per cent. of the weight of the wood, and when in this condition, with a circulation of air around it, to prevent the collection and absorption of moisture, the wood will last indefinitely, as the fungi cannot grow in such surroundings. Every one is more or less familiar with the oundness of timber in the upper part buildings, while in lower parts near the foundations it is often decayed on account of moisture.

In many situations, however, where timof the fungi are present and it will decay. Some species can be used which resist the attacks of the fungi for a long period, but the final result is decay unless the wood is treated by some process preventing the growth of the fungi, which must be capable of doing either one of two things: 1. It must keep the fibers dry, preventing the absorption of moisture. 2. If the wood must be in a damp place and kept moist, some antiseptic must be present sufficient to prevent the growth of any of the various kinds of destructive fungi. Timber entirely sub-merged does not come under these considerations. To use the first process successfully means more than a thin coat of paint or tar on seasoned wood when exposed to contin-ued moisture. It must be some substance which penetrates the tissues of the wood sufficiently far, in case the exterior sursufficiently far, in case the exterior surface is broken, to prevent any absorption of moisture. Wood impregnated with the heavy tar or lighter oils are protected more from the fact of prevention of access of dampness to the fibers than by the contained antiseptics, unless in the exception of a great percentage of creosote. In the second method the moisture is permitted to come in contact with the fibers of the wood, and reliance depends upon the antiseptic. and reliance depends upon the antiseptic. In this case the entire wood should be saturated to give the greatest measure of success, not merely an exterior protection of ½ inch or so in depth, the latter fact, as before explained, being the cause of many of the failures which have taken place. The

of the failures which have taken place. The antiseptic treatment, to succeed, must destroy all the germs which have found lodgment in the timber, and also those which may come from the exterior.

In a general paper I can only indicate the antiseptics which have been fairly successful these his many cases. ful, though in many cases the failures were due not so much to the antiseptic used as to the faulty manner of application, which can be understood from what has been written. The four antiseptics which are most used now are chloride of zinc, creosote, corrosive sublimate and sulphate of copper; sulphate of iron and pyrolignite of iron may be men-tioned. The treatment of the wood by bi-Improved Licinot.

Patented June 25th, 1886.

Will extract the LAST DROP of cloride of mercury (corrosive sublimate) was accepted from large and small lemons called kyanizing; by chloride of zinc, burelength, creosote, creosoting or the

The attempts to impregnate wood are made now with nearly all of the antiseptics timber they are closed, then steam or heat is applied to vaporize the sap or moisture; after this a partial vacuum is produced and sustained for from 6 to 12 hours, then the BELLOWS 41DICKEY, 837-843; Sheriff St., Cleveland O. great extent by capillary attraction and absorption through the cell walls.

TYPE SETTING. ee. Borption through the cell walls.

rapid. Ties of the most durable woods as a

#### Educational Engineering Books.

In a recent issue the Engineer (London) presents an article on "Educational Engineering Books" which deserves the closest attention. The subject taken up is obviously of current interest and importance, and we

commend the Engineer's treatment of it to our resders. We quote:

The field of the engineer's labors, whether in what are usually designated civil departments or in mechanics, yearly extends its boundaries, and the intending student of the present day has more to perplex him in selecting which departments of the profes-sion he will study than had his predecessors of, we may say, half a generation back. With increasing knowledge comes an increase of literature professing to instruct. Much of it, however, tends rather to conhave ever been written. While, on the one hand, the student of to day has far more to learn than he of past times, the time avail able for study remains the same, and is, moreover, a more valuable commodity. Hence it follows that the means of instruction ought to be the best possible. Engineers are frequently asked by their friends to tell them what are the best books to get for them what are the best books to get for their sons, who intend or think of adopting the profession of engineering. Solomon's remark that "Of making books there is no end" applies perfectly to engineering litera-ture in the present day, while as regards a great deal of it his context to the above will also apply: "Much study—of it—is a weari-ness of the flesh." The production of a first-rate technical treatise requires a num-ber of qualities rarely, if ever, found present ber of qualities rarely, if ever, found present in a single person. We will endeavor to state at least some of

We will endeavor to state at least some of them. The writer must himself thoroughly understand his subject—be master of it in every sense of the phrase. He must also be endowed with the gift of lucidity and conciseness of explanation, being able to reach the understanding of his suddence, his class or his readers with the least possible number of words, figures, letters of refer-ence or diagrams. He should be facile and happy in power of illustration—or, in other words, be able to mold ideas already familiar to the mind of his pupil in such fashion that they will represent the new ones he desires to impart. Above all, he must be unselfish, able to sink his own personality for the time being, thinking not of displaying hisown learning, but, avoiding "grooviness" of method, seek to put his subjects before his pupils in the manner most readily comprehended by them, never for a moment forgetting or losing sight of the object he professes to have in view, namely, to impart knowledge, not to display it. A considerable number of engineering books are so learned as to be quite over the heads of most students. Many more are so verbose, so laden with abstruse formulæ, letters, and diagrams, that the solution of the simplest question involves hours of time that can ill iar to the mind of his pupil in such fashion question involves hours of time that can ill be spared from other work. It is no doubt true that many engineering questions de-mand elaborate writing to give a precise answer with mathematical exactness, but in the majority of engineering practice absolute exactness of such a nature is not necessary, and if a useful approximation will amply suffice, and is readily obtainable in some simply written book, that is the one that will be adopted.

There is too much paste and scissors work, too much book-making and padding now-a-days. German scientific literature is often so overladen with mathematics as to render it useless for any purpose outside the phil-osopher's study. On the other hand, again, we have seen treatises on certain mechan-ical subjects but little, if at all, better than trade catalogues. Professing to explain the construction and action of certain machines, construction and accounts contain machines, nothing but elevations, evidently taken from catalogues, were used as illustrations; and author and publisher only damage their own reputation by producing such rubbish. If a man wants to acquaint himself with the nature and construction of any par ticular machine, he has but to go either to the reading room at the Patent Office, or to any provincial free library, and refer to the patent list and specification, and he will almost certainly find working drawings fully, and as a rule concisely, described. Why, then, should he throw money away on such books ! In many treatises trigonomcalled kyanizing; by chloride of zinc, burnettizing; by creosote, crosoting or the Bethel process; by sulphate of copper, Boucherie's process. Sulphate of copper has go with the times, and condense much been used for over a century in preserving timber, and when well applied the results have been good. The idea of Boucherie was to force the antiseptic through all the wood cells, which was correct and the method successful in proportion to the extent it was accomplished.

The attempts to impregnate wood are try and algebra are simply done to death. Scientific writers would do well to take example from the modern novelists. They go with the times, and condense much matter into a small space. Sir Walter Scott and others are often relegated to the top have been good. The idea of Boucherie was to force the antiseptic through all the wood cells, which was correct and the method successful in proportion to the extent it was accomplished.

The attempts to impregnate wood are try and algebra are simply done to death. Scientific writers would do well to take example from the modern novelists. They go with the times, and condense much matter into a small space. Sir Walter Scott timber, are often relegated to the top when the time nor inclination to read long stories, however good. The same applies to technical books. Why must we have grinders as well as schoolmasters? Why cannot the two be combined? A suc-Why cannot the two be combined? A successful grinder, as we understand him, is a from never-failing mountain streams. made now with nearly all of the antiseptics in large cylinders capable of sustaining from 200 to 300 pounds of pressure per square inch, one end of which can be opened and closed for admission and withdrawal of timbers. There is, of course, this difference between the schoolmaster and the grinder, that the former has to teach a greater variety of subjects, and, having only the same time each day as has the grinder, the progress of his pupils must consequently be slower. The latter works in a more contracted misture is withdrawn from the cylinders and the antiseptic is pumped in and raised to a pressure of from 120 to 150 pounds, which is maintained for from 6 to 24 hours. Porous woods are impregnated quite readily, while the heart wood of the yellow pine and the white oak are not penetrated so easily are may be 150 dounds per square inch, yet the hydrostatic pressure in the cavities of the cells, not 0.0001 inch in area, is quite small, the impregnation being to a great extent by capillary attraction and absence of the schoolmaster and not enough of the schoolmaster and not enough of the grinder about them. On the other hand, there are most excellent treatises on many echnical subjects to be had, simply and clearly written, fairly free from—to the student—perplexing abstract formulæ, and such books are welcomed by all except

TYPE SETTING, each for business home are one of moory making. Franks directions that untreated railway ties of first-rate engineering literature. Cne of in the road-bed are of necessity in about as favorable conditions for the growth of the properties of these lies in the fact that those who are favorable conditions for the growth of the in the daily and hourly practice of some favorable conditions for the growth of the interest of the Bridgewater Iron Company express confidence that the assets decay is not only probable, but certain and the time to write or the conviction that any.

thing they know is worth writing or likely rule only resist decay for from 8 to 10 years, to interest any reader; and, secondly, very while inferior qualities only last from four to seven years. Coming now from generalities to particulars, we must say a few words about publishers. As a rule their part of the work is done admirably, so far as what we might call the equipage of books is concerned. Whether as regards size, quality of paper or letter-press there is hardly any room for improve-ment, but the engravings are not always Much carelessness is often noticeable good. in the printing of letters of reference. These, which are as a rule of first-rate importance, are sometimes misplaced, and frequently some are altogether omitted, with the consequence that the student has to pass the said illustration by, not having time at his disposal to hunt up the meaning of the reference himself. We are convinced that all the instruction contained in a number of the engineering books already published could be privided much more simply and concisely, and also much more lucidly, if authors sought only to impart their knowledge with the greatest brevity, with-out thinking at all of displaying their own learning or seeking so make a thick volume. Some of our universities, technical schools or scientific bodies would, we fancy, do good work by extending the essay system a hittle by offering prizes for the best treatises on given subjects; brevity, simplicity and clearness should be the three essential conditions of success

#### The Manganese Beds of the Warm Springs Basin.

A little distance west of the French Broad River and just within the limits of the State of North Carolina is one of nature's most singular freaks. There, entirely surrounded by high mountains of Potsdam sandstone, is by high mountains of Potsdam sandstone, is an eliptically-shaped valley, the rocks of which are Quebec dolomite, and they, as well as the surrounding sandstone, are pitched at a steep angle. At the upper end of this area, immediately on and in the French Broad River, and just before the dolomite limestone is cut off by the Potsdam sandstone, are the Warn Springer The sandstone, are the Warm Springs. The water bursts up through the limestone in more than a dezen places at temperatures varying from 90° to 130°, and from these springs I have given the name to the singular basin which lies to the northwest. This basin is about 8 miles long and from 1 to 3 miles wide; on its northern end are large beds of limonite, and on its whole western side is a continuous belt of manganese ore. While the ore may be in a series of large beds connected, yet there is no doubt of its continuity from the old Allen Place near the North Carolina line to near the Warm Springs. I found no difficulty in tracing it even on horseback. This manganese ore has remained comparatively unnoted until has remained comparatively unnoted until within a few months past, and now there is a certainty of its being carefully and thoroughly tested. Messrs. J. B. White & Co., the pioneers and owners of the famous Crimora Mines, have leased land belonging to Hon. W. C. Whitthorne and others, and under the management of Professor Ritchie have companyed mining overstimes. have commenced mining operations on a scale which show a determination to seek until they find.

The geological position of this manganese belt is that of a contact deposit between the dolomitic limestone and the Potsdam sandstone, and it occurs continuously in the lowest valleys as well as on the aummits of the highest ridges that cut across its course. In the regular line of the vein the ore appears to be pyrolusite, beautifully crytallized, but to the east of the line are found beds—undoubtedly drift—in which the ore is a very light blue binoxide, only slightly and fine y crystallized. A cut has been made across this ore which is perfectly vertical, and some very handsome ore taken out. This cut, however, only develops it for about 10 feet from the surface. The strike of the clays and slates at that point is near east and west, while the general course of the main west, while the general course of the main line of ore to the west is about southeast and northwest. Assuming a similarity of formation to that at Crimora, Professor Ritchie has gone south of the cut above mentioned and is sinking a shaft at 35 feet.

mentioned and is sinking a shall as 35 ver.

He had not reached any ore—in fact, had not gone through the bowlder drift.

The question of practical importance is, What effect is this lead of manganese ores to have on the supply for the use of steel manufacturers! My observations cause me to ufacturers? My observations cause me to conclude that it is a continuous lead for more than 6 miles; that the average vein is fully 3 feet wide, while there are edly beds which spread out much larger. This lead of ore is nowhere over 3 miles from the East Tennessee, Virginia and Georgia Raiiroad or the W. N. C. R. R., and at some places in 1/2 and 2 miles. The first road connects direct to Cincinnati and Louisville on the west and to Roanoke and Nor-folk on the east; the latter to Norfolk and the North. Water for washing is abundant

As to quality: I made a selection of the average from five different places on this lead of ore, and they were sent to Prof. Jas. A. Burns, of Atlanta, who analysed them, with the following results:

																					a.	n.	fetallic nganese.	Phosphoru
No.	1				,								×								,		41.71	0.103
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No.	3												0		۰			,					42.80	0.187
No.	4	,																			,		46.01	0.157
No.	5						0	0	0		,	,	0	,	0	0			0				44.00	0.254
	A		Pi	e	r	a	H	B	0	,	۰			0	0					,			42,976	0.158

As to what depth this lead of ore may reach no one can tell, but the formation indicates possibility of great depth, and its surface persistency gives further evidence to that end. Its quality is such as to make it desirable to steel manufactures, and, should investigations prove the quantity large, this belt of ore will take no small part in the item of future steel manufacture.



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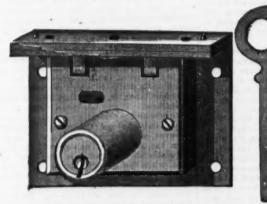
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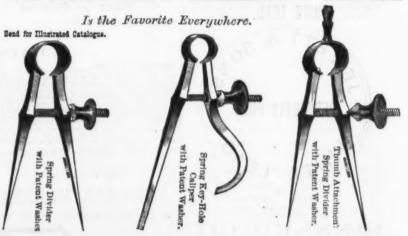
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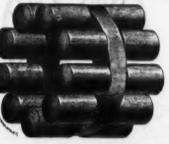
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#### THE WEEK.

The foreign consuls in Southern China have been compelled by civil disturbance to abandon the country.

Architectural plans for new armories in this city are under advisement by the Armory Board.

The managers of the American Institute announce that the 55th annual industrial exhibition will open at their building, Third avenue The building is being renovated and repainted. From present indications the exhibition promises to be successful. Every available space has been taken. Many inventions will be shown this year for the first time, particularly in the machinery and furniture departments.

New Orleans has expended \$2,000,000 on new buildings during the past year, ending

The large rag importing firm of Lockwood & McClintock, whose failure occurred last week, attribute that misfortune to the onerous operation of the rag disinfecting law. In a recent instance they were compelled to pay \$10,000 for steaming a single cargo, while the cargo itself depreciated in value perhaps an equal amount, not to speak of the costs of prosecution in another recent case.

The only oleomargarine stamps yet definitely decided upon are those representing the manufacturers' special tax of \$600 and the 10 pound special stamp, which has nine coupons, so that two or more stamps can be used upon packages containing more than even multiples of 10 pounds of oleomarga-

The work of laying the electric sub ay, now in progress, involves engineering difficulties of considerable magnitude, on account of the network of gas and water pipes, which prevents a resort to blasting. To complicate the difficulty many huge bowlders are encountered.

The Jeansville, Pa., Iron Works have just shipped a complete mining plant for the antimony mines of Sevier County, Ark., which are being successfully worked by Wm. F. Roberts, Jr., lately of Hazleton, and a metallurgical works will be constructed near by.

The red granite quarries at Westerly, R. I., are employing 500 men.

To finish the capitol at Albany will require the expenditure of \$1,500,000, according to the latest estimates, and nearly \$1,000,000 in addition for extraordinary work necessary for the preservation of the structure.

By a recent investigation it is found that the population of Gloversville, N. Y., has reached over 10,000, an increase of 4000 since the last official census was taken. There are at present 110 glove manufactories and 178 concerns connected with the glove industry.

The prospects are considered to be favorable for the speedy construction of the Storm King Bridge at Cornwall. Engineers have been ordered to commence work at once in surveying a route from Brewster's through Putnam County, touching the great iron-ore beds.

Extensive purchases of water rights have been made in Passaic and Sussex counties, in New Jersey, and in Orange County, N. Y., by capitalists known as the North Jersey Water Company, and it is conjectured that the design is to obtain control of the future water supply of Newark and Pater-

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Respecting the alleged conspiracy to kill Mr. Powderly, Robert D. Lawton, of Pittsburgh, ex-secretary of the General Executive Committee of the Knights of Labor, charges that it originated with the Home charges that it originated with the Home Club as long ago as 1882, and grew out of the trouble with the Durvea Starch Com.

This gun is of about the same length as the powerful auxiliary as an approval of Grand Chief P. M. Arthur durnavy guns, and weighs about 13 tons. pany at Glen Cove; that it was long a subject of correspondence between the East and West, and that his own life has repeatedly been threatened. The report of Mr. Powderly's intended resignation is discredited by Knights of Labor in this city.

The Republic of Guatemala, in its efforts the extraordinary method of imposing a tax | the lode. of 15 per cent. upon all imports after September 30, in addition to the established

A war of rates among our local gas companies is considered inevitable.

Andrew Carnegie has written a letter to the Lord Provost of Edinburgh, offering \$125,000 for the establishment of a free library on condition that Edinburgh release the property from taxation.

The flow of natural gas in Pennsylvania was much disturbed by earth tremors simultaneously with the destruction in Charleston from a similar cause. In some wells the of fresh water in the United States. pressure increased from 800 to 1000 pounds per square inch, while in others the gas disappeared altogether.

The Pittsburgh Chain and Axle Company were burned out in Allegheny City on the

committee of the creditors of the firm

Chemical Works, and the Buffalo Chemical Works, and they are to have entire control over the business of the defunct firm.

The har and muck mills and eight-inch department at Zug & Co.'s iron works, Pittsburgh, were totally consumed by fire on Saturday evening. The fire started in the oilroom and spread so rapidly that by the time the fire department arrived the large structure, 350 feet long by 200 wide, was in flames, and the firemen devoted their attention to the adjoining property. The and Sixty-third street, on September 29. loss will reach \$60,000, which is fully covered by insurance in Eastern and foreign companies. McIntosh, Hemphill & Co.'s foundry, on the opposite side of the street, was damaged to the extent of \$1000. The origin of the fire is not known. The destruction of the mill will temporarily throw out of employment 250 men. It is said to be the intention of the firm to rebuild at once.

> Petroleum has been found in paying quantities in New London, Conn., and oil works are to be erected. No one thinks about whales any longer.

Tippo Tib, the greatest slave and ivory trader in Central Africa, lives at the principal trading point on the Upper Congo. His rich caravans are often dispatched to the coast. He is now on his way to the Indian Ocean in response to a letter from the Sultan of Zanzibar requesting a visit.

The first of the proposed monthly auction ales of tea in San Francisco on the 24th ult. does not seem to have been a brilliant success. The absence of prominent dealers was noteworthy.

The Connecticut tobacco crop has been ecured in fine order and will bring more remunerative prices than for several years. The yield in the principal valleys ranges from 1500 to 2000 pounds per acre, the highest qualities selling at 20 cents per

A new circular from the Dominion Cus toms Department at Ottawa enjoins upon the officials greater vigilance in enforcing legal measures against the importation of goods from any place out of Canada. Only British vessels belonging to powers who are in treaty with Great Britain, the circular states, can be allowed to go from one Canadian port to another for cargoes.

A Pennsylvania paper says the Allegany and Bradford oil fields continue to supply about one-half the total oil production of the United States, but in new wells and new operations occupy but a small space in trade annals. The new production for the past month is the largest recorded for a single month since August, 1882.

The National Board of Steam Navigation, at its sessions in this city last week, condemned the use of electric lights in Hell Gate Channel, at the Battery and elsewhere, as blinding pilots by their excessive brilliancy. An election for officers was held and resulted in the selection of the following: President, I. L. Fisher, of New York ; vice-presidents, B. D. Wood, of New Orleans, and F. A. Churchman, of Philadelphia; treasurer, Addison Lyle, Pittsburgh; secretaries, J. W. Bryant, New Orleans, and Charles H. Bover, New York. Congressman Negley, of Pittsburgh, in a carefully prepared address, argued that the crippled condition of American commerce was owing to the absence of adequate water transportation, with direct and cheap mail service. Having to compete with ambitious nations who have established their powerful merchant marine through the aid of generous subsidies and liberal maritime laws, the United States must adopt a like system to give her shipbuilders and merchants an equal chance. The free registry of English-built vessels will not provide a remedy. The Engineers was held on Saturday in Scranton. extension of our foreign markets, it was

A dredging-machine company in Nevada propose to recover a goodly portion of the many millions in gold and silver sulphurets, the engineers to Scranton, and addresses amalgam and quicksilver which have been were made by Shannon McGuire, Congresscontinuously flowing from the various mills and works engaged in the reduction of the ores from the famous Comstock lode during to obtain financial relief, has resorted to the past 25 years, or since the discovery of

> The coastwise arrivals at this port during August were the largest for many years, if not unprecedented, the total being 1566.

The Treasury Department decides that new yellow sheathing and nails held on phurous fumes issued, according to one heard of a vessel and intended for use on the vessel must be entered and pay duty, or a bond must be given that they will not be landed in the United States.

Captain Dutton, of the United States Geo logical Survey, finds that Crater Lake, in OCO,OCO. As the greater portion of the Oregon, has a maximum depth of 2005 feet, property destroyed was inherited by old and is entitled to rank as the deepest body

The Village Improvement Society of Stockbridge, Mass., during the year planted trees, sprinkled streets and kept the paths clear in winter, but their best use seems to be the encouragement of private enterprise and the inspiration of public authorities.

of Martin Kalbfleisch's Sons, which failed palmiest days as a field for railway enter-some time ago, have taken charge of the prise. In the Riyer Plate countries new lina Railroad the rails buckled in repeated

Provincial Government.

It is a noteworthy fact that since the exclusion of American hog products cases of trichinosis have not decreased in Germany.

The shipbuilding trades of the United States do not yet indicate any substantial improvement attributable to recent legislation designed to remove burdens and disabilities. Our merchant marine has touched a level even below that of the little povertystricken Kingdom of Norway. In 1884 it would appear that country had 1,583,434 registered tonnage, while the United States had but 1,304,221.

Lake freights have received a further impetus, and if the ore and lumber interests call for more vessel room, as appears probable, grain freights are not likely to go down again this season.

It seems now that all hopes of an amicable settlement of the difficulties between the master plumbers and the journeymen plumbers' union are at an end. Between the master plumbers and the journeymen about 350 journeymen plumbers are out of work. The master plumbers locked out 82 men a week ago for refusing to work under the association apprenticeship rules. and the journeymen struck on Friday because the master plumbers would not regulate their shops according to the journeymen's rules. Both sides are determined. The master plumbers say it would be money in their pockets to yield to the journeymen, but the association is fighting for the principle that all young men who want to learn the trade can have a chance if the master plumbers want apprentices.

Two large steel steamers are to be built for the Baltimore and Ohio Railroad Company to carry freight and passengers between Staten Island and the Battery. The company are now admitted to the privileges of Castle Garden in common with the pool

Lockport, N. Y., celebrated with great enthusiasm the completion of the new Main street iron bridge across the Erie Canal.

Private advices from Kingston, Jamaica, just received, announce that the island of Jamaica was visited by a terrific cyclone and wind storm on the 19th of last month Entire plantations in the interior of the island were laid waste, buildings were unroofed, vessels in the harbors were driven ashore and an immense amount of property destroyed. Coffee and orange plantations suffered severely.

A company to manufacture stoves have been organized at Birmingham, Ala., with a capital of \$200,000, of which \$150,000 were subscribed by the head of a stove-manufacturing firm of Albany, N. Y. This, with the practical removal of the Baxter Stove Works from Louisville, is regarded by iron men as the first of numerous iron-casting works at Birmingham.

Nebraska is being fast made accessible by improved means of transportation. There are now in course of construction 200 miles of track, tapping the Great American Desert, one of the richest agricultural districts in the West. On Saturday the Burlington opened a line from Aurora to Hastings, which makes the connecting link between two branch systems and taps valuable territory. The lines of this road now under way and those contemplated as a portion of this year's work aggregate 414 miles. The Union Pacific and Missouri Pacific are also making rapid strides. Altogether 1000 miles of new road will be opened in Nebraska this year.

A reunion of the Brotherhood of Locomotive At a secret meeting held in the morning a meeting was held. Mayor Ripple welcomed man Scranton and Grand Chief Arthur. About 1500 engineers were in attendance.

The city of Charleston, S. C., was partially destroyed by successive shocks of earthquake on the night of August 31 and the day following. The earthquake center appears to have been near Columbia, in that State, where the earth opened in wide fissures, from which torrents of mud and sulaccount mingled with flames. The city assessor says that the loss will readily reach \$10,000,000. The taxable property aggregates \$22,000,000. Then there is the nonassessable property, churches, schools and charitable institutions, aggregating \$10,families who have no surplus means, it is believed that only a portion will be rebuilt. The City Hall and nearly all the principal buildings were shattered more or less, while others of fragile construction fell in ruins. Two well-known merchants lost their lives, but with these exceptions nearly all the victims, numbering about 50, were colored persons. It was observed that iron build-The Argentine Republic rivals Peru in its ings suffered no injury. Among the extra-

railway development is proposed by the property and warehouses in Charleston received little or no injury.

> The explosion of the boiler of a steam threshing machine in North Greenbush, N. Y., caused the death of the engineer and wo other persons.

> The New England Shipbuilding Company, of Bath, Me., on Saturday announced to their 200 employees a reduction of 25 cents a day in wages, commencing at once. The pay will range from \$1.25 to \$2. The men will refer the matter to the Knights of Labor.

Minneapolis is turning out more than 25,ooo barrels of flour a day, or enough to supply the three largest standing armies of Europe.

The Anchor Line steamship Susquebanna, the largest and best-built steamer ever floated on the Great Lakes, was successfully launched from the Union Dry Docks, at Buffalo, on Saturday. She is owned by the Erie and Western Transportation Company, and was built from designs furnished by George B. Mallory, of New York, at a cost of \$225,000.

The Erie Railway station in Jersey City aught fire on Saturday night from the explosion of kerosene in the Pullman repair shops, and five buildings, including the storerooms of the master mechanic, were totally destroyed, together with 18 cars, entailing a loss of \$200,000.

The imports of silk manufactures at the port of New York during August were valued at \$4,000,000, which is larger than in any corresponding month for several years.

The British steamship Preston, which recently cleared from Baltimore for France, laden with wheat, was built to pay. She has triple-expansion engines, makes 10 knots an hour, and consumes only 10 1/2 tons of coal a day.

A brick warehouse in St. Louis, used for the storage of railway spikes and other heavy materials, suddenly gave way beneath the pressure, and the entire roof was precipiteted into the interior of the building

The green-glass manufacturers of New York, New Jersey and Pennsylvania are resolute in their resistance to the demand of the blowers that apprenticeship shall be

The labor organizations of this city obbetween 15,000 and 20,000 men in line, under James P. Archibald, grand marshal, and Mayor Grace at Union Square. One feature ous trades, the carpenters and horseshoers metal workers were in the eighth division, under James Montgomery, marshal, and suggestive of the boycott. Among the other invited guests were many well-known labor agitators, politicians and lawyers, among them being Edward King, John Swinton, Robert Blissert, Col. Ethan Allen, Samuel Holsinger, Samuel Gompers, Rev. Father 3,116,554 bushels, against 3, McGlynn, Dr. N. T. Jackson, Louis F. Post, for the 11 months preceding. Colonel Hinton, of the United States Labor Buresu, and Mme. Delescluze. In Newark, N. J., the number of men on parade was over 15,000.

Eight-inch steel guns will be furnished to the three new cruisers Boston, Atlanta and Chicago, the first ever made in this country. The forgings are made in England. The manufacturers of machinery in Charleston, gun is 21 1/2 feet long. The 8-inch steel Armory gun is next in importance and has the earthquake not less than \$25,000, but been fully tested. The tube and jacket are their stock is not burt, and Mr. Barkley re-English, but the hoops and the breech marked: "In fact, I do not know but mechanism are forgings obtained from the what our facilities for moving engines and Midvale Steel Company, of Pennsylvania. heavy machinery have been increased." ing the recent labor troubles in the West These, however, are not the largest guns articles is done with unusual expedition." and Southwest. In the afternoon a public that we are to expect, even without further legislation of Congress. There will be 10inch guns, both army and navy. The 10inch naval gun will be 27 1/2 feet long, weigh 26 tons, or double the 8-inch, and throw a Railway concession in hand, and it is reprejectile of 500 pounds.

continue from September 8 to October 28, extensive one," says the Financier, "inand is expected to surpass the grand exposition of 1884, when there was realized a net profit of \$55,700. Twenty-five of the lead- to this capital, in competition with the ng agricultural-machine dealers of the existing line from Vera Cruz." country and 40 wood and iron workers have sent on representative exhibits.

Secretary Turner, of the Knights of Labor, olicits the views of the order upon the expediency of establishing a labor journal, to cost \$250,000 per annum for running ex-

There were sent West from Philadelphia. on the 5th inst., via Pittsburgh, four soda locomotives from the Baldwin Locomotive Works. They are bound for Minneapolis, Minn., and are to run in the streets of that city, where steam engines are forbidden. The engines look like ordinary passenger cars. The works in Philadelphia have orders for four more soda locomotives, provided these sent to Minneapolis prove nccessful

some time ago, have taken charge of the prise. In the River Plate countries new lina Railroad the rails buckled in repeated Labor, held in Charleston on the 6th inst., hand for a large steamer for the Flint Bushwick Chemical Works, the Bayonne projects are constantly before the public, instances from the contraction of the earth, the following rate of wages for mechanics and Pere Marquette Railroad Company.

and another foreign loan in furtherance of and two trains were wrecked. Wharf and laborers was agreed to, a raise of 50 cents having been made in each class: Bricklayers, first class, \$3.50; second class, \$3; carpenters, first-class, \$3; second class, \$2.50; third class, \$2; painters, \$2, \$2.50 and \$3; plasterers, \$2.50 and \$3; tinners, \$2.50 and \$3; laborers, \$1.50 and \$2.

> President Cleveland, on being interrogated respecting the appointment of Collector Magone, stated the reasons governing his action as follows: "In the first place, it makes very little difference where the man comes from if he properly fills his position. That is the main point. The merchants recognize it. In the second place, I wanted to steer clear of local political complications and to give no reasonable cause for complaint on the part of any one. In a word, I had an eye single to the immense commercial interests of the country, or, if you will allow me to repeat myself, I wanted a business position filled by a business man who would do his work in a business way. That is the long and the short of the whole matter."

The committee of the Central Labor Union, appointed to obtain relief for the families of the imprisoned Theiss boycotters, reported that \$420.33 had been collected, and that the committee of the socialistic labor party had collected \$700.

The "geyser" well at Belle Plaine, Iowa, which commenced to eject water with tremendous force almost simultaneously with the earthquake in South Carolina, is discharging about 5,000,000 gallons daily, with a pressure of 25 pounds to the square inch. There is no immediate danger from the overflow. The 5-inch pipe to be sunk with the cone-shaped top will be 75 feet in length, and the success of the experiment will depend upon sinking it in the exact center of the well. If this does not succeed a 20-inch life well will be sunk below the water-spout. which is expected to stop the flow, as the last well stopped the other seven

The convicted anarchists of Chicago are innocent compared with some other classes of agitators, if we may believe Parsons, their leading spirit. It cannot be shown. he says, that in this country they have used dynamite for unlawful purposes," while it is a matter of fact that it has been used by a dozen other other classes of agitators and strikers. The striking dry-goods clerks in New York City blew out a store front with it, and the striking miners in the Hocking served Labor Day in common with those of Valley used it; so did the strikers at Bevother cities, and forming in procession had erly, Mo. Only three months ago a judge was blown up with it in Canada. The car strikers in St. Louis used it, and finally in the whole body passed in review before Pennsylvania and Ohio during the past year the temperance people have blown up in the procession was the exhibition of vari- saloons with it, and the saloon keepers in turn have blown up churches with it. But taking the foremost position. The iron and the American socialists and anarchists have never yet hurt anybody or anything with dynamite, as far as I know." Probably their banners in numerous instances were this is true, but it is unfortunate they made so much of a parade of criminal intention.

> Baltimore rejoices in the renewed activity of the grain trade at that port. In wheat alone the exports for August amounted to 3,116,554 bushels, against 3,426,128 bushels

> San Francisco papers predict that their city will capture the whole trade of Southern Oregon as soon as the connection between the California and Oregon and the Oregon and California roads are made

Cameron & Barkley, engine-builders and report that their buildings are damaged by

The London correspondent of the Mexican Financier states that "a powerful English syndicate has taken the Tuxpan ported in financial circles at the British capital that the syndicate intend soon to The great St. Louis trade festival will begin construction. The scheme is a very volving the expenditure of some \$25,000,000 in building a railway through from Tuxpan

> Three Brooklyn supervisors are accused before Justice Walsh of compelling Granville F. F. Williams to augment the amount of his plumbing bills and afterward borrowing from him for their personal accommodation various sums of money.

The Globe Shipbuilding Company, of Cleveland, have contracted to build a steel freight steamer for Harvey Brown, and are to build another for Captain Cole, of the Grummond Line, Detroit, to cost \$130,000. Moore & Barton, of Cleveland, Ohio, have ordered a freight steamer of Quayles Sons. Captain Joyce, of Portland, Me., is having plans prepared for a 300 ton mackerel steamer to cost \$50,000. The Star Line, of Detroit, Mich., are having plans drawn for an iron steamer to cost \$160,000. The De-At a mass meeting of the Knights of troit Dry Dock Company have an order in

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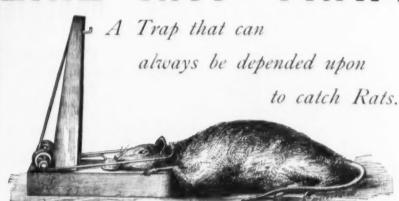
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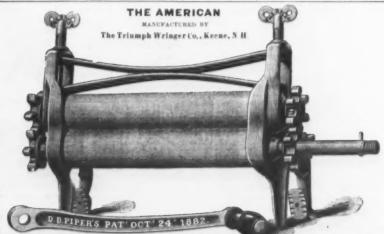
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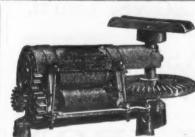
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Xess	Round Head Iron dis 70 %
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oveland Axes.  gers and Anger Bits.—New List January 7 1880	Britannia, Parker's
mjamin Pierce Auger Bits. nnings' Auger Bits, new list Jan. 1, 1884.dis. 25 % ok's Auger Bits and Augers	Gem No. 2 medium Japanned
lell's Ship Augers	Other Standard Springs
lances. ght and Common	Single No. 0. \( \psi \) dos. net.
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Taght Hand Belis	Tacks. Combination discount Shoe Nails 4.8, and over, 5146. 10
ring Machines pright, without AugersList, \$5.50 \\ ngular, without AugersList, 6.75 \\dis. 50 \\$	Double Pointed Tacks
lts.—Enstern Carriage Boits. new list. June 10, 184 dis 75&10@75&10&5 \$ hils. Carriage Bolts new list. dis 75&10@75&10&5 \$	Traps. Genuine Oneida—Newhouse:
tanier. Wrought Shutter. dis. 60&10 %	Coes' Genuine dis 60&3 Coes' Mechanics' dis 60&10&3 Coes' Mechanics' Mail. Bar dis 80&80&5 Coes' Mechanics' Mail. Bar
tanier, Wrought Shutter dis. 002.10 % races, -Barper's Improved dis. 15.50 % larber's Old Style	Wire. Bright or Annealed, No. 0 to 18dis 65&5 Bright or Annealed, No. 19 to 28dis 70
	Bright or Annealed, No. 27 to 36
itts. ast Fast Joint, Narrowdis 60 \$	Wire.  Bright or Annealed, No. 0 to 18
Mindon Corner Brace.   dis. 40@30&10     1818.   last Fast Joint, Narrow   dis. 60     last Fast Joint, Broad   dis. 40@10     last Fast Joint, Broad   dis. 40@10     last Loose Joint, Broad   dis. 40@10     last Acorn, Loose Pin   70 @ 70@10     last Acorn, Loose Joint   dis. 65 &5     Wrought Coose Pin   dis. 65 &5     Wrought Coose Pin   dis. 65 &5     Wrought Coose Joint   dis. 65 &5     Wrought Nose Joint   dis. 65 &5     Wrought Nose Joint   dis. 65 &5     Wrought Narrow Fast   dis. 65 \$	W Fingers.         Per dos.           Peerless No. 246.         27.00           Peerless No. 346.         31.50
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Wrought Loose Finges and Back Flaps. dis 65 £5 Wrought Loose Joint. dis 65 £5 dis 65 £	Universal, No. 154. 36.00 Universal, No. 1 54.00 Calversal, for Set Tubs, A 254. 36.00
Wrought Narrow Fast	Daiversal, for Set Tubs, E 156
Illia   Billia   dis. 7582 8     Parker   dis. 80 68 8085 8     Stepard   dis. 7081086 69 80 8     Lull & Porter   dis. 8082 10 8     Lull & South   dis. 7082     Lull & South   dis. 7082     Lull & South   dis. 8082     Lull & South   dis. 8082     Lull & Porter   dis. 8082     Lull & South   dis. 8082     Lull & South   dis. 8082     Lull & Porter   dis. 8082	No. 3 & 33 11-in 31.50 Excelsior, for Stationary Tubs. No. 3 & 33 11-in 31.50 Excelsior, for Stationary Tubs. No. E. 10-inch 36.00 Excelsior, for Stationary Tubs. No. F, 11-inch 40.50
nsters.—Bed (new list July 1, 1880; Platedis 60 60&5 \$	Calvanized Nos. 7 to 13. Market List, dis
hainsGerman Halter and Coil. Hat June, 1884	PITTERLIPCH
Galvanized Pump.   Gls. 55 @ 55 & 5 & 5 & 5 & 6 & 5 & 6 & 5 & 6 & 5 & 6 & 6	Merchant Iron. TERMS.—Note or acceptance at 60 days, with curre rate of exchange on New York, or a discount of 2 cent. for cash if remitted within 10 days from date invoice.
hiseis	cent. for cash if remitted within 10 days from date invoice.
offee Mills.—Box and Side (new list Jan. 1. 1880. dis 45&10 % Enterprise	The following are card rates.
atlery,—Walden Pocket	### Bar. 114 to 4 by 14 to 1
Goodnow Mfg. Co. and Meriden Cutlery Co., Manufacturers' prices net.	1% to 6 by 1% to 1162.4# %, % and 7% by % to %.2.  Rounds and oquares.
oor HangersCronk Barn Door HangersNo. 4, 112.00; No. 5, \$14.00; No. 6, \$1800.dis. 50&5@50&10 \$ American Parlor Door Hanger\$0.00; dis 20&10 \$	1 to 1¼ 2.0¢ 4¼ to 5. 3.5¢ ¾ 2.0¢ 25 10.2% 2.2¢ ¼ to 5. 2.1¢ 5.16 2.2 24 to 24 2.2¢ ¼ to 74 2.1¢ 5.16 2.2 24 to 3.4 2.5¢ ¾ to 9.16 2.2¢ ¼ 3.5¢ 3.5¢ 3.0¢ 3.0¢ 3.0¢ 3.0¢ 3.0¢ 3.0¢ 3.0¢ 3.0
rawing Knives. Hart Mfg. Co.'s	75 to 116
less	% to 1% inch. 2.0¢ % 3.
Butcher	By to 114 hm # 18 an Wallet
uting Machines.   Ragie = 34 in. roil	% to 134 by 5-16 to % inch
Crown—6 in. roll         .each. 4.00 dts 35 %           Crown—8 in. roll         .each. 6.60 geneva fluter           .dis 25 %         .dis 25 %	11 & 12 . 3.0¢ 14
# doz\$3.00 3.75 4.25 4.75 5.25 6.00 7.00 8.00 9.00	114 to 6 by 14 to 3-162.5¢   14 & 11-16 by 14 to 3-16.3.
ammers. Yerkes & Plumb's. new listdis 40&5 % Maydole Hammers. new listdis 25%25&10 % Howell A. E. Nail Hammers	1½ to 6 by ½ to 8-16 2.5e
landles. Dission Loop Handles Cross-Cut20# pair net Boynton Loop Handles Cross-Cut20# pair net	36 & 13-16 by Nos. 11, 12, 3.0¢   ½ in. by Nos. 11 & 12, 3.1
Boynton Loop Handles Cross-Cut	134 to 2, No. 16, 17, 18.2.9 4 1, No. 21 3.1 14 to 2, No. 19 3.0 4 1, No. 22 3 3 1 14 10 2, No. 20 3 1 4 1 1 1 6 No. 13 14 2 15 2
Hunt	134 to 2, No. 21
Hunt	15-16, 1 & 15, Nos. 16, 17 & 18
Gem Hay Knife	15-16, 1 & 154, Nos. 19 & 56, Nos. 19 and 20
lerse Nails. Nos. 5 6 7 8 9 10 Globe 26 23 21 20 19 18 dis 10&5&b \$ Ausable 30 27 25 24 23 22 dis 25&10 \$	16-16, 1 & 196, No. 32, 3.4¢ % No. 23
linges. Strap and T. Son. 5 d 7 d 9 9 10 Strap and T. Son. 5 d 7 d 9 9 10 Globe 98 23 21 20 19 18 dis 1025&5 \$ Globe 98 23 21 20 19 18 dis 1025&5 \$ Ausable 90 27 25 24 32 22 dis 2026 10 \$ Pol'ed and P'v'd 98 88 25 24 25 dis 2026 10 \$ Clinton 23 21 90 19 18 dis 2026 10 \$ Saranse at Fiv d 24 22 21 30 19 48 52 25 26 5 26 30 \$ Saranse at Knebs 91 20 19 18 dis 2026 20 \$ Saranse at Knebs 91 20 19 18 dis 2026 20 \$ Eranford Locks 91 40 40 22 \$ Eranford Locks 91 40 40 22 \$ Eranford Locks 91 40 40 22 \$ Eranford Locks 91 91 91 91 92 92 92 92 92 92 92 92 92 92 92 92 92	Nos. 19 and 20. 3.6 9.16, Nos. 19 and 20. 4. 8. No. 21. 3.6 9.16, No. 21. 9.16, No. 22. 3.6 9.16, No. 22.
Pol'ed & P's'd. 24 22 21 20 19 dis 25&10 \$ 8arapac	13-16, Nos. 15, 14 & 16. 3.4¢ 9-16, No. 23 13-16, Nos. 17 & 18. 3.5¢ 16 inch, Nos. 18, 14, 15. 4 13-16, Nos. 19 and 203.6¢ 16ch, Nos. 16, 17, 18, 4
Branford Locks. dis 45&2 \$ Parker's Cabinet	13-16, No. 22 3.86 1 10ch, No. 21 4 20 1.1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Branford LOCES	Se
* doz	1-10# # a extra will be charged for cutting Hoops
Buckeye 0, \$6.75.97.00; No. 1, \$8.25.98.50 \$\pi\$ dos. net	134 to 2 fn cut to length
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Long and Short Cutter new list, 60&10 &	Sheet Iron.
icinases (dates. Enterprise Mfs. Co.'s Measuring Fauceta.dis. 20&10 \$ Stebbins' Gates	Nos. 18 to 17
Lincoin's Gatesdis. 66% 10 s Landers, Frany & Clark's Petroleumdis 40& 10 s Brass Liquor Cocks new list Jan. 1, 1880 dis. 55 & 10 s	Nos. 25 and 26
Cork Lined Cocksdis. 70 s eat Cuttors. Dixon'sdis. 46@6 S	Sheet Iron   Common   Charcoal Junia
Pennavivania Pattern	Wood's Patent Plantshed Sheet.  lat quality (A)
American	American Galvanizad Sheets. (Sopo C. H. B.) Brand. Patent Leveled: Nos. 14 to 20
arers, Apple and Peach. Ideal Apple Parers	Nos. 21 to 24
arers, topic and Feach.  Ideal Apple Farers per doz \$5.00  Waverly Apple Parers per doz \$1.00  Goodell Volte Mountain Apple Parers per doz \$1.00  Goodell Lightning Apple Parers per doz \$1.00  Monarch Peach Parers per doz \$15.00 dis 10 5  Innes, Sandusky Tool Co. dis 2002  Junes, Sandusky Tool Co. dis 2002  Junes Sandusky Tool Co. dis 2	Coal Screen iron.  194 by % by 5-162.5¢   1 by % by 5-163,  Angle Iron.
The state of the s	1% by % by 5-16 2.5¢   1 by % by 5-16 3.  Angle Iron.  314, 3, 354 and 4 inch 2.5¢   1½ by 1, for Pl. Hand 3.  114, 124, 2 and 334 2.5¢   1½ by 1, for Pl. Hand 3.  134 inch 2.5¢   1½ by 14 3.  1
Ogonts. dia 25&2 \$ Ohio and Auburn. dia 20&2 \$ Ratter & R. & L. Co. 1	1 3.14 T Rail.
Oncore. dis. 25822 5 Din and Auburn. dis. 2082 6 Din and Auburn. dis. 2082 6 Balley S. R. & L. Co. dis. 20&10 6 Lane Irens.—Ohio Tool Co. dis. 20&10 6 Butcher: \$6.00 @ 5.25 to 8 Lumbs and Levels.	TAKEND & to the yard TAKEND & to the yard
Ohio and Auburn	13 " " " " " " " 23¢   28 " " " " " " 2 3¢   30 " " " " 2 3¢   30 " " " 2 3¢   30 " " " 2 3¢   30 " " " 2 3¢   30 " " " 2 3¢   30 " " " 2 3¢   30 " " " 2 3¢   30 " " " 2 3¢   30 " " " 2 3¢   30 " " " 2 3¢   30 " " " 2 3¢   30 " " " 2 3¢   30 " " " 2 3¢   30 " " " 2 3¢   30 " " 2 3¢   30 " " 2 3¢   30 " " 2 3¢   30 " " 2 3¢   30 " " 2 3¢   30 " 2 3¢   3
Ohio and Auburn	18
Ofic and Auburn	15
Ohio and Auburn	34. by \$4 and \$4 Spikes for 20 and 28 b Rail. 35 24 and 3 by \$6 12 and 16 b 3. 35 by 6 8 by 6 .18 h 8 by 6 .18 b 8 by 6 .18 Rails.—Punched and Countersunk.  156 to 2 by \$4 to \$6 inch. 2 2
Ohio and Auburn. dis. 2022 8  Ralley S. R. & L. Co. h. dis. 2021 6  Inne Irens.—Ohio Tool Co. dis. 2021 6  Butcher's	34, by \$4 and \$5 Spikes for 20 and 28 b Rail. 35 24 and \$5 by \$4 ii 12 and 16 b ii 3. 32 by \$6 16 b ii 12 and 16 b ii 3. 3. 32 by \$6 16 b ii ii 8 b Rail. 4. 4. Flat Rails.—Punched and Countersunk.  154 to \$2 by \$4 to \$4 inch. 9. 134 by \$4 and 7.16 inch 2. 134 by \$4 and 7.16 inch 2. 134 by \$6 and 8.16 inch 3. 135 by \$
Ohio and Auburn. dis. 2042 8  Ralley IS. R. & L. Coh. dis. 20410 8  Inne Irons.—Ohio Tool Co. dis. 20410 8  Inne Irons.—Ohio Tool Co. dis. 20410 8  Inneb and Levels.  Stanley's Adjustable. dis. 70410 8  Stanley's Non-Adjustable dis. 70410 8  Stanley's Non-Adjustable dis. 70410 8  Lamont Combination. gross lots \$42.00  Intiation Emerson. \$\psi\$ dos. \$2.00, 70410 410 \$  Lamont Combination. gross lots \$42.00  Intiation Emerson. \$\psi\$ dos. \$2.00, 70410 410 \$  Lules.—Stanley Boxwood. dis. 8045,800410 \$41.00  Lules.—Stanley Boxwood. dis. 8045,800410 \$42.00  Lules.—Stanley Lot Tr78 21.00 \$6.00 \$1.00 \$5.00  Lots. \$0 100 180 900 905 905  American Pattern. dis. 40410 \$5.00 \$6.00 \$1.00 \$5.00  Lots. \$0 100 180 900 180 \$5.00 \$1.00 \$5.00  Lots. \$0 100 180 900 905 900  Soale Bearns. \$0.0025,900410 \$5.00 \$5.00  Soale Bearns. \$0.0025,900410 \$5.00  Soale Soale Soale \$0.0025,900410 \$5.0025	3k by \$6 and \$5 spikes for 20 and 28 b Eali. 35 25 and 3 by \$6 ii 12 and 16 b ii 3. 3. 25 by 5-16 bi ii 12 and 16 b ii 3. 3. 25 by 5-16 bi ii 8 b Rall. ii 3. 3. 25 by 5-16 bi ii 8 b Rall. ii 3. 3. 25 by 5-16 bi ii 8 b Rall. ii 3. 3. 25 by \$6 and 7-16 inch 2. 25 by \$6 and 7-16 inch 2. 25 by \$6 and 7-16 inch 2. 25 by \$6 and \$6.00 bi inch 2. 25 by \$6 and \$6.00 bi inch 2. 25 by \$6 and \$6.00 bi inch 2. 25 bi i
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Obio and Auburn	Si, by % and is Spikes for 20 and 28 b Rail
Ohio and Auburn	34 by \$4 and \$4 spikes for 20 and 28 b Eali. 34, 24 and 3 by \$6 ii 12 and 16 b ii 3.3, 234 by \$6.16 b ii 12 and 16 b ii 3.3, 234 by \$6.16 b ii 8 b Rall. 3.4.  134 by \$6.16 k ii 8 b Rall. 3.4.  134 by \$6 and 7.16 inch 2.1  134 by \$6 and 7.16 inch 2.1  134 by \$6 and \$7.16 and \$6 inch 3.4.  Junista Nail Rods, \$0.6; Norway Nail stods, 7.5\$, 3.4.  Guard Iron, \$2.5\$, 3.5\$, and \$6.5\$, \$5.5\$, and \$6.5\$, \$6

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Sad Irons.	8 x 7 3.5¢ 6 6 8 x 5 2.5¢ 6 8 x 3 1.5¢ 6 8 x 2 1.5¢ 10 8 x 3 2.0¢ 4 7 x 5 2.0¢ 4 7 x 3 1.0¢ 3 7 x 3 4 . 1.0¢ 5 8 x 3 x 1 2 2 0 0 3 8 x 3 x 1 2 2 0 0 3 8 x 3 x 1 2 2 0 0 3 8 x 3 x 1 2 2 0 0 3 8 x 3 x 1 2 2 0 0 3 8 x 3 x 1 2 2 0 0 3 8 x 3 x 1 2 2 0 0 3 8 x 3 x 1 2 2 0 0 3 8 x 3 x 1 2 2 0 0 3 8 x 3 x 1 2 2 0 0 3 8 x 3 x 1 2 2 0 0 3 8 x 3 x 1 2 2 0 0 3 8 x 1 2 0 0 0 3 8 x 1 2 0 0 0 0 3 8 x 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
PITTSBURGH.	Machine cutting to Machine cutting to Machine cutting to according to com on each size. Sh above extras for
TERMS.—Note or acceptance at 60 days, with current rate of exchange on New York, or a discount of 2 weak, for cash if remitted within 10 days from date of invoice.  For fluctuations and discounts on card rates see weekly Pittsburgh Trade Report.  The following are card rates.  First Bar.  14 to 4 by % to 1 2.0   14 and 18 by % to 14 2.1   14 to 6 by 16 to 14 2.2   18 to 6 by 16 to 14 2.4   18 dand 18 by % to \$4 2.2   18 to 6 by 16 to 14 2.4   18 dand 18 by % to \$4 2.2   18 to 6 by 16 to 14 2.4   18 dand 18 by % to \$4 2.2   18 to 6 by 16 to 14 2.4   18 dand 18 by % to \$4 2.8   18 dand 18 by 16 by 2.8 to \$4 2.8   18 dand 18 by 16 by 2.8 to \$4 2.8   18 dand 18 by 18 to 14 2.8   18 dand 18 by 18 to 14 2.8   18 dand 18 by 18 to 14 2.8   18 dand 18 by 18 to 18 18 dand 18 by 18 dand 18 by 18 to 18 dand 18 by 18 dan	1 1/4 in. and wider x 1 1/4 in. and wider x 1 1/4 in. and wider x 1 1/4 in. and wider x 1/4 in. and wider x 1/4 in. to 1/4 in. x 1/4 1/4 in. to 1/4 in. x 1/4
1 to 114 2.0e 444 to 5. 3.6e 46. 2.6e 2 to 286 2.2e 44 to 5. 3.1e 5.10 2.8e 44 to 314 2.5e 44 to 314 2.6e 314 2.6e 314 2.6e 314 2.6e 44 3.0e 44 3.0e 44 3.0e 44 3.0e 45 10 314 2.6e 314 3.0e	% in. to 1% in. x 1. 1% in. to 3 in. x 1.1 Ting inch and wider a Extras same as F
	Throughout the lis Round Edge Tire 134 inches and wide Extras same as M
## to 134 by 5-16 to 34 inch	1% inches and wide Extras same as M of 1% to 4 in. x No. 4 i 1 and 1% in. x No. 5 ga 74 to 3 in. x No. 5 ga
Henry   Bands   4 to 1.6 to 1.5 to 1.6 to 1.5 to 1.6 to 1.5 to 1.6 to	1 to 3 in. x No. 5 ga 36 to 3 in. x No. 11 g 46 to 3 in. x No. 11 g 46 to 3 in. x No. 17 g 46 to 46 in. x No. 17 g 46 to 46 in. x No. 17 46 to 46 in. x No. 17 18 to 56 in. x No. 17 19 to 56 in. x No. 17 19 to 56 in. x No. 17 10 to 56 in. x No. 17 10 to 56 in. x No. 17 10 to 56 in. x No. 17
\$\frac{1}{6}\$ & 13.10 \ \ \text{y} \ \ \text{Nos. } 13.16 \ \ \ \text{Nos. } 13.16 \ \ \ \ \ \text{Nos. } 13.16 \ \ \ \ \ \text{Nos. } 13.16 \ \ \ \ \ \ \ \text{Nos. } 13.16 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	56 to 156 inches. ba 26 to 5.16 inext 36 to 7.16 inext 36 to 7.16 inext 16 gauge thick and 15, 16 and 17 gauge 18 and 19 gauge. Rounds, 36 diamete Rounds, 5maller si Double bevel, 14 ga Double bevel, thin Fork Steel, Open-H Rake Steel, Open-H Auger BH Steel. Open-H
54. Nos. 13, 14 and 15, 3.29 51. Nos. 13, 14 à 15, 4.16 54. Nos. 16, 17 and 18, 3.39 51. Nos. 13, 14 à 15, 4.16 54. Nos. 19 and 20. 3.36 51. Nos. 19, 17 à 18, 4.29 51. Nos. 22 3.56 51. Nos. 13, 14 à 16, Nos. 15, 14 à 16, Nos. 15, 14, Nos. 15, 14, Nos. 15, 15, Nos. 16, 17 à 18, 3.69 51. Nos. 16, 17 à 18, 3.69 51. Nos. 16, Nos. 19 and 20. 3.69 51. Nos. 10, 17, 18, 4.6 51. Nos. 13, 14 and 15, 3.69 51. Nos. 10, 17, 18, 4.6 51. Nos. 13, 14 and 15, 3.69 51. Nos. 10, 17, 18, 4.6 51. Nos. 10, 17 and 18, 3.69 51.	Flow Slabs, Open-J Ovais and Balf Shapes subject to a No freight allows pounds of Steel in Axie Biliets. Scytho Back Steel. Grain Drill Bars. Grain Drill Bars. Cutter Shoe. cut to Rolling Coulter Bis Terms.—Four moi if remitted within
specified lengths.  Barrel Boops.  14 to 2 in., cut to length.  9 to 11 5, we set of 6 hoops.  5 h and less than 9 5, west of 6 hoops.  2.14 to 2 in., cut to length.  5 h and less than 9 5, west of 6 hoops.  2.15 Less than - 5, we set of 6 hoops.  2.27 Extras for cutting to length all preceding Iron including Tire.  1.10	Shell Steel, ¼ inch- pounds tensile st. Shell Steel, 3-16 in- tensile strength Shell Steel, B gaug 60,000 pounds ter Shell Steel, 10 ga 60,000 pounds ter Shell Steel Plates
No. 9 & heavier, 2.8¢; Plow Slabs, 3.0¢ Plow Wings, 3.3¢  **Sheef From.**  Common. Charcoai, Juniata.  Nos. 10 to 14. Common. Charcoai, Juniata.  Nos. 15 to 17. 2.9¢ 4.5¢ 6.0¢  Nos. 18 to 21. 3.6¢ 5.6¢ 6.0¢  Nos. 28 to 24. 3.8¢ 5.6¢ 6.0¢  Nos. 29 to 24. 3.8¢ 5.7¢ 7.2¢  No. 27 to 4.2¢ 5.7¢ 7.2¢  No. 28. 4.0¢ 6.1¢ 7.0¢  All sheets No. 18 and lighter, over 30 Inches wide, wo'less than 2.10¢ extra.  **Wood's Fusent Planished Sheet.**  lst quality (A). 10¢ 2d quality (D). 9¢	Shell Steel Plates. Shell Steel Heads, diameter
American Galvanized Sheets.  (Sobo C. H. B.) Brand. Patent Leveled:  Nos. 14 to 20 12¢ No. 27 15¢ Nos. 25 and 25 14¢ No. 29 16¢ No. 25 and 25 14¢ No. 29 18¢ 60 @ 62½ \$ discount.  (Solution of the control of the contr	Flange Steel Plater flange Steel Hoad: dameter Flange Steel Hoad inches diameter. est Roller Steel, b to 70,000 pounds fleet Boller Steel, pounds tensile at fleet Boller Steel, s to 70,000 pounds fleet Boller Steel, b
134 inch	to 70,000 pounds Best Boiler Steel P. Best Boiler Steel wide Bost Boiler Steel B inches diameter. Best Boiler Steel H inches diameter.
114 to 2 by 14 to % inch	Entirely new,
Junista Nail Rods, 6.08; Norway Nail Rods, 7.59, Guard Iron, 3x38x38 and 5x88x58, Guard Iron 8x8x3x38 and 5x88x58, Guard Iron 8x8x3x38 and 5x8x5x38, Brag Sam. 8.89 (Flow Beam Iron 8.76 Dropper Bars 8.89 (Flow Beam Iron 8.56	cast-iron sinks i being lighter, durable. These sinks,
Natis.  See Pittsburgh Trade Report.  Tool Steel.  Classification Adopted April 13, 1886, Steel Association of United States.  BOUND, SQUARE AND OCTAGON.	wrought steel, wheat, cold, or as We furnish tor galvanized, a -freedom from
% to 2. base, 8.0¢ 6% to 7 2.0¢ 14 2 9-32. 7.0¢ 26 to 3. ext. 1.0¢ 7% to 8 3.5¢ 3-16. 5.0¢ 35 to 4 1.5¢ 9-16 to 54 0.5¢ 44 10.5. 2.0¢ 7-16 to 54 1.0¢ 56 10.6. 2.0¢ 7-16 to 54 1.0¢ 56 10.6. 2.0¢ 7-16 to 54 10.0¢ 14 18.0¢ 15 to 6 2.0¢ 7-16 to 15 18.0¢ 15 to 6 18.0	ered—less than from cast iron.

	HE IRON AGE	
	List of Extras.  8 x 7	I pe
	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Be po ca
2 2 2	8 x 134 to 36 1.0¢ 5 x 36 1.0¢ 36 x 36 2.0¢ 8 x 36 1.0¢ 5 x 36 1.0¢ 5 x 36 1.0¢ 36 x 51.0¢ 1.0¢ 1.0¢ 1.0¢ 1.0¢ 1.0¢ 1.0¢ 1.0¢	AU
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	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Sk Pl Co
6 K K	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	89
		Sp So
5	according to contract.  Crucible Steels.  CRUCIBLE MACHINERY, ROUNDS AND SQUARES.  4 to 3 inchesbase 4.0e   3 to 7.16 in extra 0.5e	Fo
0 8 8 8 8	Crucible Steels.  CRUCIBLE MACHINERY, ROUNDS AND SQUARES.  4 to 3 inchesbase, 40¢   3¢ to 7-16 inextrs, 0.5¢ 33¢ to 4 inextrs, 0.5¢   5-16 and 11-32 inext. 1.0¢ 43¢ to 5 inextrs, 1.0¢   4 and 9-32extrs, 1.5¢ 03¢ to 6 inextrs, 1.0¢   4 and 9-32extrs, 1.5¢ 3-16 inextrs, 0.2¢   Octayons, 5½ extrs throughout the list. Flats, one-half the extras of the Flat Tool Steel classification. Cutting to multiples or specified lengths, 1½¢ per pound for anything over 24 inches long. For lengths 24 inches or less, according to to special contract.	Ho
5 5	half the extras of the Flat Tool Steel classification. Cutting to multiples or specified lengths, 15¢ per pound for anything over 24 inches long. For lengths	Fu Sa Sa Ro
8	24 inches or less, according to to special contract.  14 to 4 in. x No 4 gauge to 44 in. inc base, 4.04 in x No 4 gauge to 44 in. inc base, 4.04 in x No. 15 gauge to 4 gauge inc extra, 0.56 f to 3 in. x No. 5 gauge to 7 gauge inc extra, 0.56 f to 3 in. x No. 8 gauge to 10 gauge inc extra, 1.05 f to 3 in. x No. 11 gauge to 10 gauge inc extra, 2.06 f to 3 in. x No. 11 gauge to 20 gauge inc extra, 2.06 f to 3 in. x No. 17 gauge to 20 gauge inc extra, 3.56 f to 46 in. x No. 17 gauge to 20 gauge inc extra, 4.06 f to 46 in. x No. 17 gauge to 20 gauge inc extra, 5.06 Cut to length. 24 inches and over, 146 per pound extra and under, according to special contract.  ROUND AND SQUARE CHUCHEL SPRING STEEL.	Re
	% to 3 in. x No. 17 gauge to 10 gauge inc extra, 0.56 % to 3 in. x No. 8 gauge to 10 gauge inc extra, 1.06 % to 3 in. x No. 11 gauge to 16 gauge inc extra, 2.06 % to 3 in. x No. 17 gauge to 20 gauge inc extra, 3.56	SISS
* *	% to % in. x No. 10 sauge to 16 gauge incextra, 4.0\$ % to % in. x No. 21 gauge to 26 gauge incextra, 5.0\$ Cut to length. 24 inches and over, 14\$ per pound ex-	SI SI P
* * * *	Ta : and under, according to special contract,   ROUND AND SQUARE CRUCHELE SPRING STREEL.	E
000	CRUCIBLE SHEET STEPL ALL ORANGE	04
days.	To 21 gauge (for best quality), base, 9.0g; 22 gauge, extra, 1.0g; and 1s advance of extra for every No. of gauge to No. 26.  CRUCIBLE CIRCULARS.  Diameter.	55.50
cash in 10	Diameter.   Diameter.   To 46 inch.   base, 11¢   66 to 69 inch.   extra, 5¢   50 to 64 inch.   extra, 1¢   62 to 64 inch.   extra, 9¢   65 to 54 inch.   extra, 36   73 inch.   extra, 19¢   extra, 1	0
182 % CB	MACHINERY BOUNDS AND SOUARDS	-
net, di	% to 3 in. inc	
	Nachine cutting to specified lengths above 24 in. 0.2e Machine cutting to specified lengths, 12 to 24 in. 0.4e Machine cutting to specified lengths, less than 1.2 in., according to contract, but not less than 0.6e extra on each size. Shearing or sawing, one-half of the above extras for cutting.	-
of of		
d t.	14 in. and wider x 3-16 and 7-32 in. thickextra, 0.2¢ 14 in. to 1½ in. x ½ to 1 in. thickextra, 0.3¢ ½ in. to 1½ in. x 3-16 and 7-32 in. thickextra, 0.2¢ ½ in. to 1½ in. x 3-16 and 7-32 in. thickextra, 0.3¢	
20	MACHINERY FLATS.   Dasc. 2 8¢	
se	% 10. to 19 10. x 1-16 and 3-32 in. thickextra, 2.0¢ 1½ in. to 3 in. x 1-16 and 3-32 in. thickextra, 1.0¢ THE STEEL, ROUND EDGES.	
le le	% inch and wider x % to 1 inch thick base, 2.6¢ Extras same as Flat Machinery extras. THE STEEL, SQUARE EDGES. Throughout the list 0.2¢ more than for same sizes of	
80	Throughout the list 0.2¢ more than for same sizes of Round Edge Tire. TOE-CALK STEEL. 134 inches and wider x % to 1 inch thickbase 2.7¢ Extras same as Machinery Extras.	
Se Se Se	Extras same as Machinery Extras  #LEIGH-SHOE STEEL.  154 inches and wider x 54 to 1 inch thickbase, 2.8¢  Extras same as Machinery Extras.	
10		
10	134 to 4 in. x No. 4 sauge to 35 in. inc	
	% to % in. x No. 10 gauge to 16 gauge inc. extra, 4.0¢ % in. x No. 17 gauge to 20 gauge inc. extra, 5.0¢ % to % in. x No. 21 gauge to 22 gauge inc. extra, 5.0¢ extra, 6.0¢ Resammer and Open-Hearth cut to learn 4.4 inches	
	and over, 0.1¢ per pound extra; and under, by special contract.  ROUND SPRING STEEL.	1
	CONTROL.  ROUND SPRING STREL.  \$ \{0\) inches. base. 2.9\(\epsilon\) 5-16 inchextra. 1.0\(\epsilon\) 15 inches. base. 2.9\(\epsilon\) 16 inchextra. 1.0\(\epsilon\) 16 inchextra. 1.5\(\epsilon\) 16 inchextra. 0.5\(\epsilon\) 16 inchextra. 0.5\(\epsilon\) 16 inchextra. 0.5\(\epsilon\) 17 inchesextra. 0.5\(\epsilon\) 18 inchesextra. 0.5\(\epsilon\) 18 inches	1
	14 gauge thick and heavier base, 3¢ 15, 16 and 17 gauge. extra, 1¢ 18 and 19 gauge. extra, 1¢ 18 and 19 gauge. extra, 2¢ Rounds, ¾ diameter and heavier base, 4¢ Rounds, ¾ diameter and heavier base, 4¢ Rounds, smaller sizes, extras same as Machinery. Double bevel, 14 gauge and heavier public bevel, 14 gauge and heavier public bevel, 14 gauge and heavier public bevel, 15 gauge and heavier public bevel, 16 gauge and 16 g	
le le le	Double bevel, 14 gauge and heavier	
Se Le	Hoe Steel, Open-Hearth or Bessemer. 3¢ Auger Bit Steel, Open-Hearth or Bessemer. 3¢ Plow Slabs, Open-Hearth or Bessemer. 3¢	-
10	Ovais and Mair Ovais, Hair Rounds and Special Shapes subject to special agreement. No freight allowance shall be made on less than 500 pounds of Steel in one shipment.	
10	Miscellaneous.   Axle Biliets	
10 10 10	Axie Billets	
m.		
10	Shell Steel, ¼ inch thick and heavier, 50,000 to 60,000 pounds tensile strength.  Shell Steel, 3-16 inch thick, 50,000 to 60,000 pounds tensile strength.  Shell Steel, 8 gauge and 9 gauge thick, 50,000 to 60,000 to	
10	Shell Steel, 3-10 Inch Inics, 00,000 to 60,000 pounds tensile strength	
10	Shall Steel Plates 100 inches to 105 inches wide	
a. O¢	extra on each thickness, %6 Shell Steel Heads, 95 inches diameter to 105 inches diameter	1

extra on each thickness, 5sc hall Steel Heads, 95 inches diameter to 105 inches diameter. extra on each thickness, 5sc heil Steel Heads, 105 inches diameter to 108 inches diameter. extra on each thickness, 1.0sc lange Steel, ½ inch thick and heavier, 50,000 to 60,000 pounds tensile strength. extra, 0.5sc lange Steel, ½ inch thick, 50,000 to 60,000 pounds tensile strength. extra, 0.5sc lange Steel, 5 statuc and 9 gauge thick, 50,000 to 60,000 pounds tensile strength. extra, 1.5sc lange Steel, 10 gauge to 12 gauge thick, 50,000 to 60,000 pounds tensile strength. extra, 1.2sc lange Steel, 10 gauge to 12 gauge thick, 50,000 to 60,000 pounds tensile strength. extra, 1.2sc lange Steel Plates, 90 inches to 100 inches wide. extra on each thickness, ½ lange Steel Heads, 50 inches do inches wide. extra on each thickness, ½ diameter. extra on each thickness, ½ lange Steel Heads, 100 inches diameter to 108 inches should be supposed to 70,000 pounds tensile strength. extra on each thickness, ½ leat Boiler Steel, ½ inch thick and heavier, 50,000 to 70,000 pounds tensile strength. extra, 1.5sc leat Boiler Steel, 3-16 inch thick, 50,000 to 70,000 pounds tensile strength. extra, 1.5cc leat Boiler Steel, 8 gaure and 9 gauge thick, 50,000 to 70,000 pounds tensile strength. extra, 1.5cc leat Boiler Steel, 10 gauge to 12 gauge thick, 50,000 to 70,000 pounds tensile strength. extra, 1.5cc leat Boiler Steel Plates, 90 inches to 100 inches wide, extra, 1.5cc leat Boiler Steel Plates, 90 inches diameter to 108 inches

eads, when not in complete Bolier sets, to be %¢ pound extra on each above grade, thickness and No Steel to be sold as Marine Bolier Steel except Bolier grade. Tank Steel, not stamped, ¼¢ per Boliess than Shell Steel, subject to same classifi-on.

ound less than Shell Steel, subject to same classification.

Miscellaneous Cast Steel.

uger and auger Bit...36
Lie Steel for carriages

Fixe Steel for carriages

Spindle, subject to Machiny classification. 346
Frog Side Bars.

Fixe Steel for carriages

Spindle, subject to Machiny classification. 346
Frog Side Bars.

Fixe Spindle, subject to Machiny classification. 346
Frog Crank Pins and Spindle for Spindle, subject to Machiny classification. 346
Frog Crank Pins and Spindle for Spindle, subject to Machiny classification. 346
Frog Crank Pins and Spindle for Spindle, subject to Machiny classification. 346
Frog Crank Pins and Spindle, subject to Machiny classification. 346
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Frog Crank Pins and Spindle, subject to Machiny classification. 346
Frog Crank Pins and Spindle, subject to Machiny classification. 346
Frog Crank Pins and Pinster. 346
Frog Crank Pins and Spindle, subject to Machiny classification. 346
Frog Crank Pins and Spindle, subject to Machiny classification. 346
Frog Crank Pins and Pinster. 346
Frog Crank Pins and Pinster. 346
Frog Crank Pins and Spindle, subject to Machiny classification. 346
Frog Crank Pins and Pinster. 346
Frog Crank Pinster. 346
Frog Cra

Rolls and Custings.

Per and Rolls over 12 inches diameter.

and Rolls over 12 inches diameter.

and Rolls over 12 inches diameter.

and Rolls 12 inches diameter and under.

toll Pinions 14 inches diameter and under.

toll Pinions 14 inches diameter and under.

fousen and Rolling Mill Castings not otherwise specified.

specified.

spinidles and Coupling Boxes.

squeezer Pinions and Wheels.

suide Plates.

spur and fievel Wheels, large.

spur and fievel Wheels, small.

"Vulleys, up to 30 inches.

"Uleys, over 30 inches.

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39 48 54 60	16 x 24 to 20 x 28 15 x 34 to 24 x 30 26 x 28 to 24 x 36 26 x 36 to 26 x 44	\$8,75 9,25 10,75 12,25 13,00 14,50	\$8,00 8,50 9,75 10.75 11.50 13.25	\$7.50 8.00 8.75 9.00 9.75 10.75	87.0
86 84 90	28 x 46 to 30 x 50. 30 x 52 to 30 x 54. 30 x 56 to 34 x 56. 34 x 58 to 34 x 60. 36 x 60 to 40 x 60. Double Strength.	15.00	14.00	11.25	
86 54 60 70 80 84 90 94	6 x \$ to 10 x 15.  41 x 14 to 15 x 24.  41 x 14 to 15 x 24.  42 x 25 x 25.  43 x 26 x 27 x 25.  45 x 26 x 27 x 26.  45 x 26 x 27 x 26.  46 x 26 x 27 x 26.  47 x 26 x 27 x 26.  48 x 26 x 27 x 26.  48 x 26 x 26 x 26.  48 x 26 x 26.  48 x 26 x 26 x 26.	13,25 14,50 17,25 19,75 21,00 23,25 24,00 25,75 27,75 29,25 33,25	12.25 13.25 15.76 17.25 18.50 21.25 22.50 23.25 25.00 27.75 30.00	11,25 12,50 14,00 15,75 17,25 18,00 19,25 21,75 24,00 27,75	10.
81: Ai glas incl incl	35 x 58 to 34 x 56.  56 x 60 to 40 x 60.  2cs above — \$10 \( \) box ex n additional 10 per cent.  8 more than 40 inches wines in length, and not make, will be charged in cket.	tra for will b de. A ing me	30,00 every e cha- il size ore tha	5 inc fed f s abo	he or ve

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plated, Fire Old Gold inlaid 1.75

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No. 218, Ornamental Iron, Iron Knob, Nickel-	
plated, Blue Old Gold inlaid	1.
No. 219, Ornamental Iron, Iron Knob, Nickel-	
plated, Green Old Gold inlaid	H.
No. 220. Ornamental Iron, Iron Knob, Nickel-	2.0
plated, Copper Old Gold Inlaid	3.0
No. 221, Ornamental Iron, Iron Knob, Nickel-	20
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to. 222, Ornamental Cast Brass, Polished and	2.6
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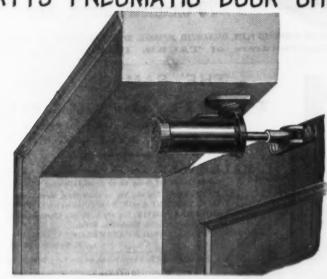
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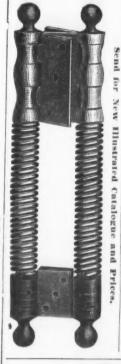
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The weight of the Swing is a little less than 100 pounds it is very strong, having been tested by four men whose weight aggregated over \$00,000nds

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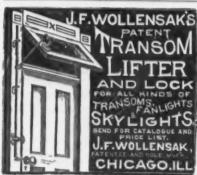
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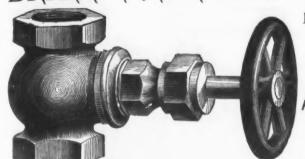
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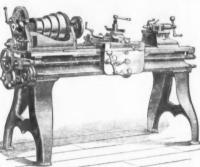
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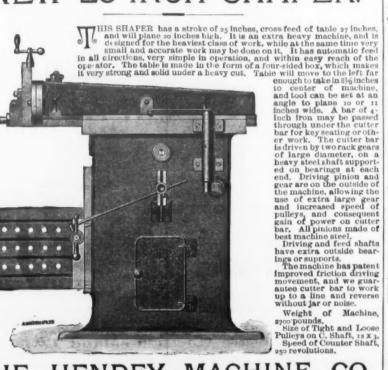
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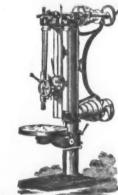
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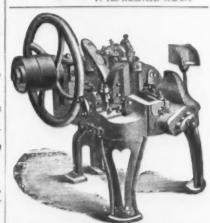


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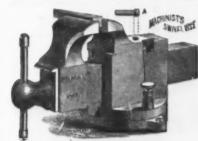
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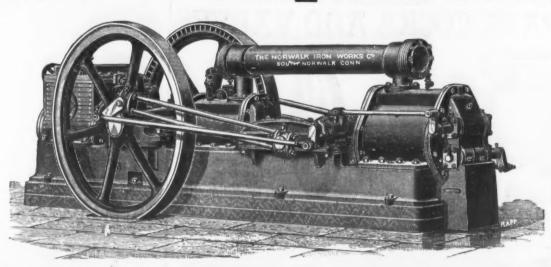
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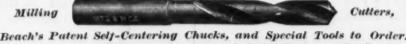


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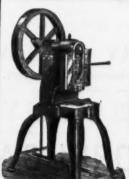


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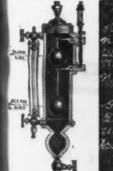
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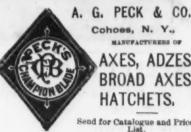
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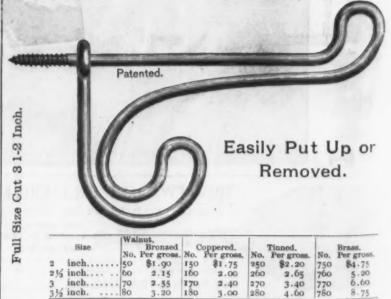
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